The Giant's Causeway, Northern Ireland, is a UNESCO World Heritage Site and is in the care of the National Trust. It is famous for its scenery and over 40,000 black basalt hexagonal columns, built up from successive lava flows cooled at the water's edge.

Survival of Cancer Patients in Northern Ireland 1993-96

This Report should be cited as:
Fitzpatrick DA and Gavin AT. Survival of Cancer Patients in Northern Ireland 1993-1996. N. Ireland Cancer Registry, Belfast (2001).

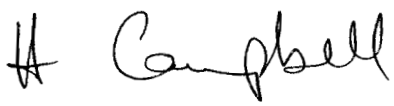
September 2001

Foreword

Cancer is an important cause of premature death in Northern Ireland. Recently much effort has been concentrated on improving services for the detection and treatment of cancer. The N. Ireland Cancer Registry is an important part of the infrastructure in cancer services. It is only through the careful collection and analysis of data that we will know whether or not we are being successful in improving outcomes in cancer care.

This first Cancer Survival Report marks an occasion to be celebrated. For the first time ever, we are now presented with the survival rates from different cancers in Northern Ireland. These figures are important because firstly, they allow us to compare our performance with elsewhere and secondly, they give us a baseline against which we can measure future progress.

This Report is a mark of the commitment and dedication of the staff of the N. Ireland Cancer Registry, and great credit must go to the vision and leadership of its Director, Dr Anna Gavin. This Report signals a new beginning in the evaluation of cancer care and will help to set new challenges for our cancer services. This first Cancer Survival Report should be greeted with much acclaim for the excellence which has guided its production. We must however await the second Cancer Survival Report with great interest because it will tell the tale. Let us work towards ensuring that it is one which will chart further success in cancer care.



Dr Henrietta Campbell
Chief Medical Officer

Acknowledgements

Special thanks are due to all those who provided data, supported the development of our computer system, assisted with our quality checks and advised us on the Registry's development and specifically this report. They include members of the N. Ireland Cancer Registry Council, Management Group and Research Advisory Group, staff from the Directorate of Information Systems (DIS), Trust Patient Administration System (PAS) co-ordinators, computer advisers and staff in the pathology departments.

Thanks are due to the Department of Health, Social Services & Public Safety (DHSSPS) for Northern Ireland who fund the Registry and the Ulster Cancer Foundation for their continued support.

The Registry has been helped enormously by medical records staff in hospitals throughout Northern Ireland and our thanks go to them. A survival report would not be possible without information on deaths and we are grateful for the close co-operation of the staff from the General Register Office.

Thanks to Dr Mike Quinn and Professor Michel Coleman for their invaluable comments.

Finally, thanks to the Registry Team (see below) whose skill and dedication have made possible the data capture and analysis resulting in this Report, with special recognition to Dr Jeffrey Robertson, retired Pathologist, who generously provides expert advice regularly to the Registry in his own time.

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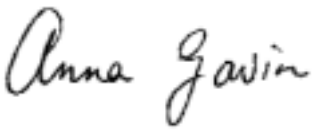


Dr Anna Gavin
Director

This report is dedicated to the memory of Professor Gary Love, who was chairman of the Registry's Council since its inception in 1994 and whose wisdom encouraged us.

Contents

1. Introduction and Background

The N. Ireland Cancer Registry (NICR) is a population-based registry for approximately 1.7 million people which, since 1993, records data on incident cancers. The remit of the NICR is to provide information on cancers occurring in the Northern Ireland population for the purposes of research, education and the planning of cancer services.

This Report is the latest in a series of publications prepared by the Registry, which have previously covered cancer mortality and incidence (1, 2) and an All-Ireland Cancer Statistics report prepared jointly with the National Cancer Registry (Ireland), Cork (3) (each report is accessible via the Registry web site at http://www.qub.ac.uk/nicr/intro.htm). Although trends in incidence rates primarily reflect trends in risk factors in the population, and to a lesser degree improvements in diagnostic facilities, it is patient survival that is thought to best assess improvements in diagnostic and treatment facilities (4). This Report describes, for the first time, survival for Northern Ireland patients diagnosed as having cancer during the period 1993 to 1996 and examines survival rates in various population sub-groups, such as men, women, young and old, together with comparisons of survival with other countries.

Dataset

The Registry receives data from many sources such as hospitals, pathology laboratories, disease specific registries, hospices and radiology departments. Additionally, the General Register Office (GRO) supplies data on all deaths occurring annually in the Northern Ireland population. Tumour details are collected on cancer diagnoses according to the International Classification of Disease (ICD), ninth revision (5). The diseases registered include malignant, benign and in-situ neoplasms, and neoplasms of uncertain or unspecified behaviour. For the purpose of this Report, only malignant neoplasms (excluding non-melanoma skins) are considered, i.e. ICD-9 140 to 208, excluding 173. Multiple primary neoplasms in the same person were analysed as independent tumours; out of the 25,414 tumours registered between 1993 and 1996, 3.2% were multiple. Over 9,000 non-melanoma skins were registered but are not included in the dataset (see below).

Data Exclusions

Non-melanoma skin cancers are excluded from the dataset because,
a) survival is excellent, with only 0.2 deaths per 100,000 per year. Their treatment usually results in complete cure if detected early, and
b) many registries do not collect these data.

Patients aged under 15 and over 99 at the time of diagnosis have been excluded, the former because it was decided to restrict this publication to survival from cancer in adults except for an explicit childhood chapter, and the latter because there are more problems with data quality and interpretation of the results in very old patients (6).

All cancer registries have some Death Certificate Only (DCO) registrations. The level of these notifications is generally regarded as a measure of a registry's performance in case ascertainment and as an indicator of data quality. Low levels of DCOs (less than 5%) are regarded as an indicator of good case ascertainment and data quality (7). When a death certificate is received containing information on a tumour or patient not previously known to the Registry, the GP records are checked to confirm the disease and date of diagnosis. If it is not possible to ascertain a date of diagnosis prior to death then date of diagnosis is deemed to be the same as the date of death and the case is classified as a DCO notification. Similarly, when notification occurs only from an autopsy report, the date of diagnosis is the same as the date of death (8). With both these methods of notification, the resulting survival time is zero. Approximately 2.9% of cancer patients were DCO or autopsy cases. It is usual in survival analysis to exclude such cases as they would bias survival rates downward. However, these patients are included in the incidence and mortality calculations and reports.

Vital Status

In order to calculate survival, registered cases are followed up to assess the vital status of patients i.e. are they alive or dead. The Registry has a comprehensive system for capture of deaths, receiving notification of all deaths from the GRO (NI), which record information on deaths due to all causes among the Northern Ireland population. Additionally, the Registry is notified of deaths occurring in Scotland, England and Wales, of people who were normally resident in Northern Ireland.

The Registry data are cross-matched with the GRO data to ascertain patients' vital status, and where appropriate their date of death. Patients whose death has not been notified (unmatched cases) are considered to be alive (8). For this report, patients were followed-up to 31st December 1999. While this is quite a vigorous method of follow-up, there is a chance that a small number of deceased patients could be counted as alive despite our best efforts, thus inflating the survival rates.

Trends in incidence and mortality

A frequent problem in cancer epidemiology involves the comparison of incidence and mortality rates over time. Comparison of simple crude rates can give a false picture because of differences in the numbers or age structure of the populations being compared. Thus it is important to allow for the changing population age structure, which is accomplished by age standardisation (7). For each cancer site, incidence and mortality rates were standardised to the European Standard population (Appendix 1). This allows us to compare rates between populations with different sizes and age structures and for the same population over time when the population may have become older or their numbers have changed.

To investigate trends in incidence (1993 to 1996) and mortality (1993 to 1999), linear regression analyses of the European Age-Standardised Rates (EASR) were carried out over the relevant period.

Methods for estimating patient survival

The survival time for a cancer patient is defined as the time elapsed between diagnosis and death. The estimation of patient survival is complicated by the fact that some patients die of causes unrelated to the cancer of interest. To allow for the deaths due to other diseases, survival is expressed as relative survival rate (RSR). Relative survival is the ratio of the observed survival divided by the survival that the patients would have experienced if they had the same probability of dying as the general population having the same age and sex. Also patients may still be alive at the time the analysis is performed. These observations are said to be censored, and the estimates of patient survival must take account of them (8). Relative survival is higher than absolute survival, which does not take account of the background population mortality. It is also higher than 'disease free survival' as patients may live for many years with their disease.
The expected survival rate is calculated from Registry life tables for the Northern Ireland population stratified by sex, age (0-99 years) and calendar year (1993-6). The cumulative RSR after five years of follow-up is often used as a single measure of the survival experience of a population and is interpreted as the proportion of patients alive five years of follow-up in the hypothetical population where the cancer in question is the only possible cause of death.

All analyses were computed using the Surv2 relative survival software developed by the Finnish Cancer Registry (8). Hakulinen and Abeywickrama (9) cover the statistical theory used in Surv2 to estimate and compare the relative survival rates.

In interpreting survival rates, the number of individuals entering a survival interval should be taken into account (7). For some cancer sites, the sample size was extremely small resulting in unreliable estimates of survival. For the purposes of this Report, survival rates were not published for intervals in which fewer than 10 patients enter the interval alive, because of the instability of resulting estimates. In these instances, the rates are denoted by '-'. The accuracy of the survival rates is given by confidence intervals, which indicate the range within which the true survival is most likely to fall. If there are few patients entering an interval alive, the range of the confidence interval surrounding a survival rate is subsequently wide.

Comparison with Other Countries

Relative survival rates were published for Scotland 1991-1995 (6), England and Wales 1991-1993 (10), Republic of Ireland 1994-1998 (11) and other European registries 1985-1989 (12). It should be noted that the survival rates for the various registries were based on data from different years (Table 1.1). This complicates interpretation of apparent differences in survival rates, as survival rates for most cancers are improving with time.

The relative survival rates for Northern Ireland, the Republic of Ireland, Scotland, and England and Wales were computed for adults i.e. 15 to 99 years, whereas other European Registries were for all ages combined. It should be noted that in this publication, only the following registries collate data at a national level: Northern Ireland, Republic of Ireland, Scotland, England and Wales, Denmark and Finland. The remaining European Registries collate data on a regional level, in some cases covering only a small percentage of the national population (see Table 1.2) (13). Having

data, however complete, on only a small proportion of the population may not be representative of the country as a whole and in turn introduce bias; especially if the area under question is socio-economically different from the rest of the country or if they have access to a different level of diagnostic or therapeutic service, as could be the case if it is close to a major cancer hospital.
Hence caution must be taken when drawing survival comparisons amongst the various registries.

Table 1.1: Registry area, period for which cases were registered and the date of follow-up.

Location	Period of registration	Censure date
Northern Ireland	1993 – 1996	31st December 1999
Scotland	1991 – 1995	31st December 1998
England and Wales	1991 – 1993	31st December 1998
Republic of Ireland	1994 – 1998	31st December 1999
Other European Registries	1985 – 1989	31st December 1996

Table 1.2: The percentage of population covered by cancer registration

Registry	Percentage of Population Covered
Northern Ireland	100
Republic of Ireland	100
Scotland*	100
England & Wales*	100
Denmark*	100
Finland*	100
Austria, Tyrol*	7.8
French registries*	3.9
Germany, Saarland*	1.7
Italian registries*	9.7
Dutch registries*	20.5
Spanish registries*	9.6
Sweden, South*	17.5

*Note: these registries have historic data prior to the period indicated

Table 1.3: Northern Ireland: the annual average of incident cases between 1993 and 1996, the annual average of deaths between 1993 and 1996, the percentage of incident cases and the percentage of cancer deaths represented by the site.

Site	No. of new cases (Annual average 1993-6)	No. of deaths (Annual average 1993-6)	% Incidence	% Cancer deaths
All ex NMS	6358	3574	73.9	99.7
Trachea, Bronchus, Lung	894	787	10.4	22.0
Breast	836	329	9.7	9.2
Colon	633	334	7.4	9.3
Prostate	467	205	5.4	5.7
Rectum	317	114	3.7	3.2
Stomach	269	191	3.1	5.3
No Site Specified	247	247	2.9	6.9
Non-Hodgkin's Lymphoma	234	110	2.7	3.1
Bladder	226	94	2.6	2.6
Melanoma	181	29	2.1	0.8
Kidney & Other Urinary	170	64	2.0	1.8
Oesophagus	153	135	1.8	3.8
Pancreas	150	150	1.7	4.2
Leukaemia	146	88	1.7	2.5
Ovary	112	92	1.3	2.6
Brain	103	74	1.2	2.1
Body of uterus	97	11	1.1	0.3
Cervix uteri	83	34	1.0	0.9
Total	8602	3584	100.0	100.0

Most common cancers in Northern Ireland

Figure 1.1: Common cancers in Northern Ireland Males 1993-6

Total Cases per year 4,227

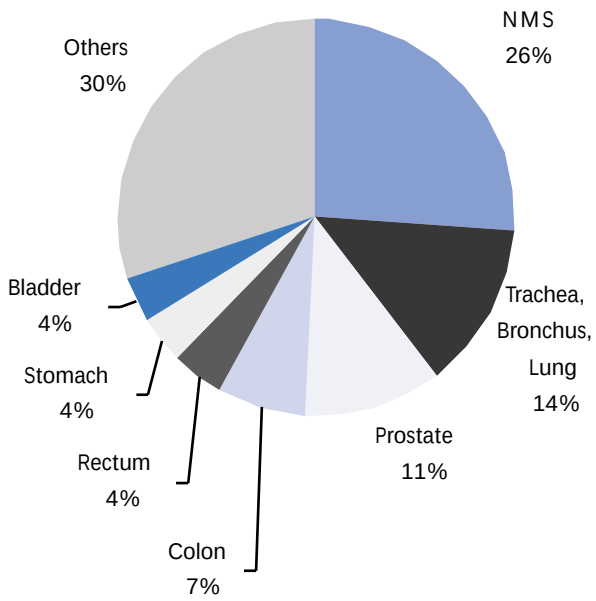
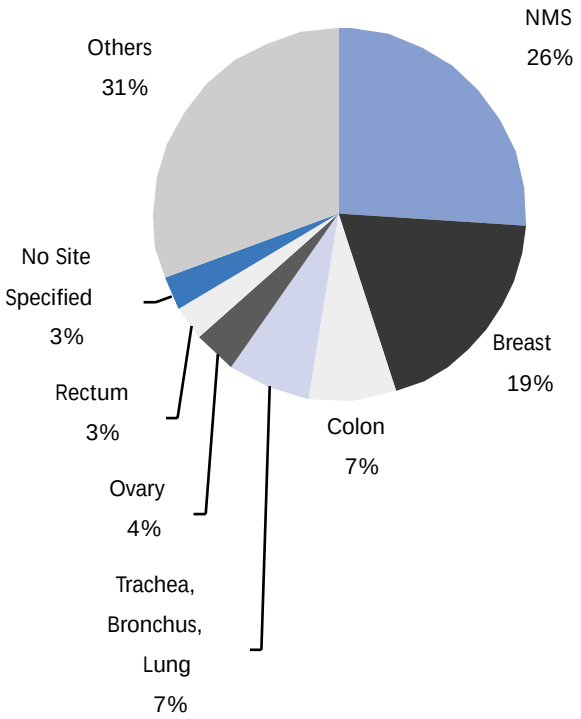


Figure 1.2: Common cancers in Northern Ireland Females 1993-6

Total Cases per year 4,375



Key Facts

- 3,126 men and 3,232 women are registered with cancer each year: Incidence rates in men are falling
- 1,845 men and 1,685 women die each year: Death rates from cancer are falling
- 56% of men survive one year, 42% three years and 38% five years
- 66% of women survive one year, 54% three years and 51% five years
- Women had better survival rates than men (10% higher at one year) driven by differences in the younger age group
- Younger men and women have better survival rates than older people.

2. All Cancers except Non-Melanoma Skin

These results refer to all malignant neoplasms (ICD-9 140 to 208) except non-melanoma skin cancers (NMS) (ICD-9 173).

Incidence and Mortality

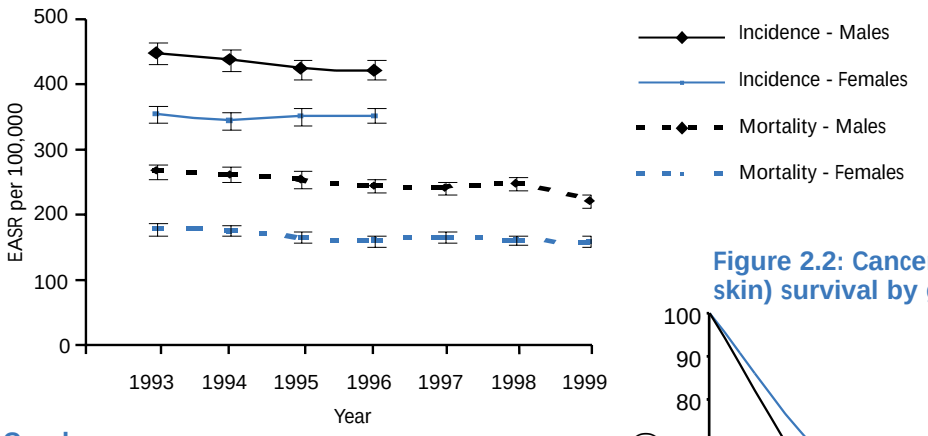
Between 1993 and 1996, an average of 3,126 men and 3,232 women were diagnosed annually as having cancer (excluding NMS). The European age-standardised incidence rates (EASR) in males from 1993 to 1996 decreased significantly (P<0.05) by an average of 9 cases per 100,000 per year. There was no statistically significant (P>0.05) trend in the incidence EASR for females (Figure 2.1). Age-standardised rates (ASR) allow for change in the age structure of the population over time.

In the same period, an average of 1,845 men and 1,685 women died annually from cancer. Between 1993 and 1999, there were statistically significant downward trends in mortality EASRs for men (P<0.01) and women (P<0.05), with the standardised mortality rate for men decreasing by an average of 6.4 cases per 100,000 per year, whilst for women, it decreased by an average of 2.9 cases per 100,000 per year (Figure 2.1).

Table 2.1: Summary table for cancer at all sites, except non-melanoma skins

Summary 1993-1996	Males	Females
Average annual number of cancers (exc. NMS) registered	3126	3232
Average annual number of cancer (exc. NMS) deaths	1845	1685
% cases excluded from survival analysis	4.0	3.9
Relative survival rates (Age-standardised rates) (%)		
1-year	56 (58)	66 (67)
3-year	42 (44)	54 (55)
5-year	38 (39)	51 (52)

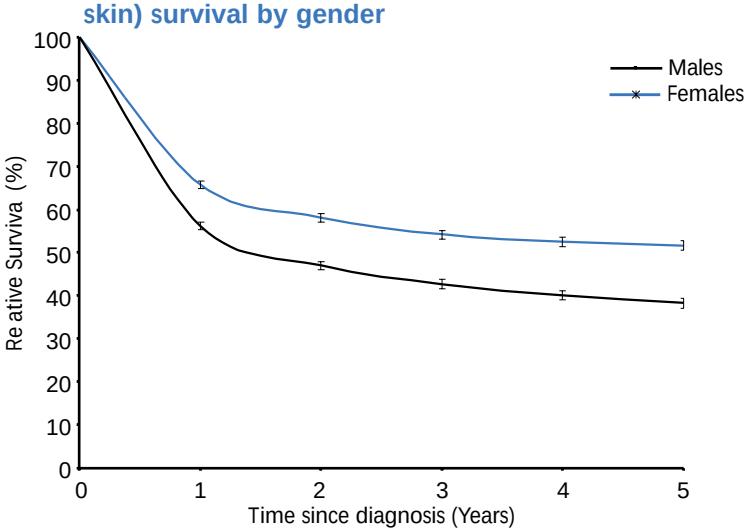
Figure 2.1: European age-standardised incidence and mortality rates for all cancer sites excluding non-melanoma skin by gender



Gender

There was a very highly statistically significant difference (P<0.001) in survival rates between men and women, with women having overall better survival rates than men (Figure 2.2). For men diagnosed between 1993 and 1996 as having cancer, 56% survived one year, 42% three years and 38% five years. The corresponding relative survival rates for women were 66%, 54% and 51% respectively (Table 2.2).

Figure 2.2: Cancer (excluding non-melanoma of the skin) survival by gender



Gender (cont'd)

The higher survival rates observed in women may be explained as follows. Firstly, it reflects the combination of the site distribution and survival from the individual cancers, e.g. men have proportionally more smoking related cancers, all of which have poor survival (e.g. lung five-year RSR 8%) and more alcohol related cancers (e.g. oesophageal five-year RSR 9%), while the female-only cancers of breast and cervix have good survival (five-year RSR of 78% and 64% respectively). Also, for some of the primary sites, the survival rates for women were better than men e.g. lung. Additionally, the female survival advantage could be due to greater attention of women to their health and to disease, resulting in earlier diagnosis and more effective treatment (14).

Age

For each age group, women had better survival than men (Figure 2.3). The overall relative survival rates of men and women decreased as their age at diagnosis increased. Both men and women diagnosed with any cancer (excluding NMS) before their 65th birthday had significantly better survival (P<0.001) than those aged 65 years or older, even after taking account of the higher rates of death from other causes in the older population. One-year relative survival was approximately 13% higher for those men diagnosed with cancer (excluding NMS) in the younger age band than those diagnosed at 65 years or older. Women exhibited a similar pattern, with 27% higher survival in the under 65 age group (Table 2.2). Considering those patients diagnosed under the age of 65, women had better survival than men. For patients diagnosed at 65 years or older, survival of men and women was similar.

Figure 2.3: Cancer (excluding non-melanoma of the skin): Relative survival at one and five years by gender and age at diagnosis

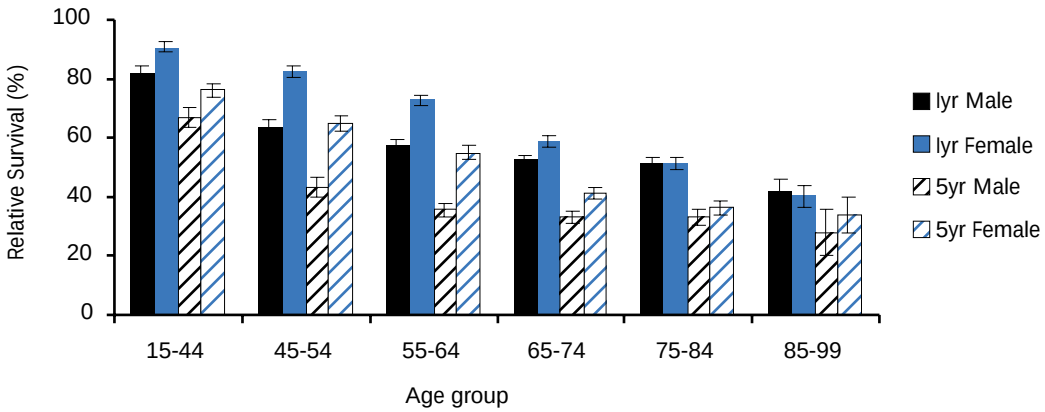


Table 2.2: Cancer (excluding non-melanoma of the skin) survival: Comparison by gender and age

The number of cases registered, the relative survival rates (%) and 95% confidence intervals at one, three and five years, for patients diagnosed 1993-6.

Gender	Age (years)	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival (%)	95% CI (+/-)
Both	15-99	24183	61	1	48	1	45	1
	15-64	9479	73	1	60	1	55	1
	65-99	14704	52	1	39	1	36	1
Males	15-99	11874	56	1	42	1	38	1
	15-64	4060	64	2	49	2	44	2
	65-99	7814	51	1	38	1	33	2
Females	15-99	12309	66	1	54	1	51	1
	15-64	5419	80	1	68	1	63	1
	65-99	6890	53	1	41	1	39	2

Health Boards

There was a statistically significant difference (P<0.001) in survival rates between the populations of the four Health Boards, with the Southern Health Board population having significantly better survival than the remaining three Health Board populations (Table 2.3). However, these differences may mainly reflect random variation and differences in case-mix. For example, higher levels of breast and prostate cancers (associated with better survival) are registered in the Southern Board area, whilst lower levels of lung cancer (associated with poor survival) are registered in this Board area. Further, on examination of individual cancer sites, there were no statistically significant differences (P>0.05) between the

survival rates of patients from any of the four Boards. This seems to suggest the overall difference between Boards is most likely to be an artefact due to having only a few years data. We await more years of data.

Table 2.3: Cancer (excluding non-melanoma of the skin) survival by Health Board

The number of cases registered, the relative survival rates (%) and 95% confidence intervals at one, three and five years, for patients diagnosed 1993-6.

Health Board	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival (%)	95% CI (+/-)
Eastern	10799	59	1	46	1	43	1
Northern	5889	62	1	50	1	45	2
Southern	4130	64	2	53	2	50	2
Western	3432	61	2	48	2	44	2
N. Ireland*	24415	61	1	49	1	45	1

*Includes patients whose health board was unknown

Survival Comparisons

Our population had better five-year survival rates than Scotland and similar rates to the Republic of Ireland. In comparison to other European Registries, our five-year survival rates for men and women were average (Table 2.5). However, as these rates were calculated on data almost 10 years earlier, it would be reasonable to assume that the more current European survival rates would have improved and our ranking would slip.

Table 2.4: Cancer (excluding non-melanoma of the skin) survival in the 1990s: Local comparisons

The period of diagnosis, the number of cases registered and the five-year relative survival rates (%) for patients aged 15-99 years.

		Males		Females	
Registry	Diagnosis Period	No. of cases	5-year Survival (%)	No. of cases	5-year Survival (%)
Northern Ireland	93-96	11874	38	12309	51
Scotland	91-95	53494	32	55558	43
Republic of Ireland	94-98	29677	40	28053	51

Table 2.5: Cancer (excluding non-melanoma of the skin) survival: Comparisons in Europe 1985-89

The number of cases registered between 1985 and 1989, five-year relative survival rates (%) and corresponding 95% confidence intervals for various European Registries

		Males		Females	
Registry (% Population coverage)		No. of Cases	5-year Survival (95%CI)	No. of Cases	5-year Survival (95%CI)
Denmark*	(100%)	49950	32 [32-33]	54362	47 [47-48]
Finland*	(100%)	33791	38 [37-39]	36589	54 [53-54]
Austria, Tyrol	(7.8%)	2071	45 [43-48]	2262	54 [52-57]
French registries	(3.9%)	14783	37 [36-38]	10536	59 [58-60]
Germany, Saarland	(1.7%)	9837	40 [38-41]	9981	52 [51-53]
Italian registries	(9.7%)	47198	34 [34-35]	40967	52 [51-52]
Dutch registries	(20.5%)	6963	35 [34-36]	6158	55 [54-56]
Spanish registries	(9.6%)	18594	40 [39-40]	12813	52 [52-54]
Sweden, South	(17.5%)	14959	47 [46-48]	14559	59 [58-60]

* These registries are national population-based registries.

Recommendation

The lower cancer site-specific survival for men requires further investigation

Key Facts
- 95 men and 58 women are registered each year
- 81 men and 51 women die per year
- 28% of men survive one year, 12% three years and 9% five years
- 33% of women survive one year, 19% three years and 19% five years
- Women have better survival rates than men (5% higher at one year)
- Younger patients have better survival rates than older patients

3. Cancer of the Oesophagus

ICD-9 150

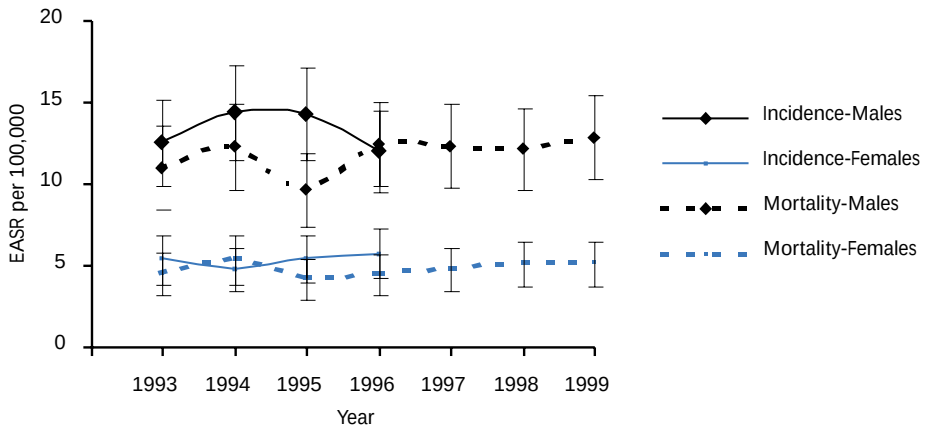
Incidence and Mortality

In 1996, oesophageal cancer was the eleventh most common cancer in men and fifteenth most common in women, accounting for approximately 2% and 1% respectively of all cancers registered in patients here. Between 1993 and 1996, 95 men and 58 women were registered as having oesophageal cancer each year, and an average of 81 men and 51 women per year died with the disease. There were no statistically significant (P>0.05) trends in either the EASR incidence or mortality rates (Figure 3.1).

Table 3.1: Summary table for cancer of the oesophagus

Summary 1993-1996	Males	Females
Average annual number of oesophageal cancers registered	95	58
Average annual number of oesophageal cancer deaths	81	51
% cases excluded from survival analysis	4.2	6.9
Relative survival rates (Age-standardised rates) (%)		
1-year	28 (28)	33 (45)
3-year	12 (11)	19 (31)
5-year	9 (7)	19 (31)

Figure 3.1: European age-standardised incidence and mortality rates of cancer of the oesophagus by gender



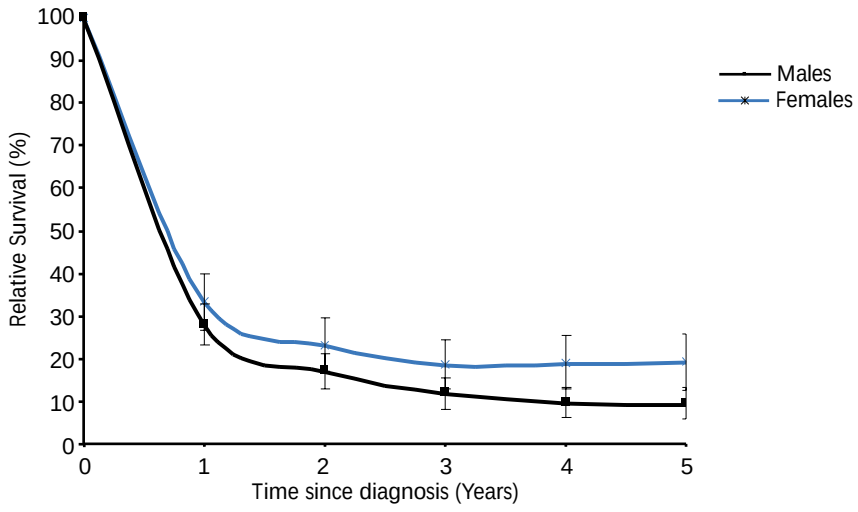
Survival

Overall survival was low with approximately 70% of patients dying within one year of diagnosis and about 13% living five years.

Gender

There was a statistically significant difference (P<0.05) in survival rates between men and women, with women having overall better survival rates than men (Figure 3.2). For men diagnosed between 1993 and 1996 as having cancer of the oesophagus, 28% survived one year, 12% three years and 9% five years. The corresponding relative survival rates for women were 33%, 19% and 19% respectively (Table 3.2).

Figure 3.2: Oesophageal cancer survival by gender



Age

Survival rates were not calculated when there were less than 10 patients entering a survival interval. However, where calculated, survival rates were seen to decrease as age increased (Figure 3.3). The wide confidence intervals are due to the small numbers of patients in many of the age groups. Those diagnosed as having oesophageal cancer before their 65th birthday had significantly better survival rates ($P<0.05$ for men and $P<0.001$ for women) than patients aged 65 years or over. One-year relative survival was approximately 12% higher in men diagnosed with oesophageal cancer before their 65th birthday than those diagnosed aged 65 years or older. Women exhibited a similar pattern, with 28% higher survival at one year in the younger age band (Table 3.2).

Figure 3.3: Oesophageal cancer survival at one and five years by gender and age at diagnosis

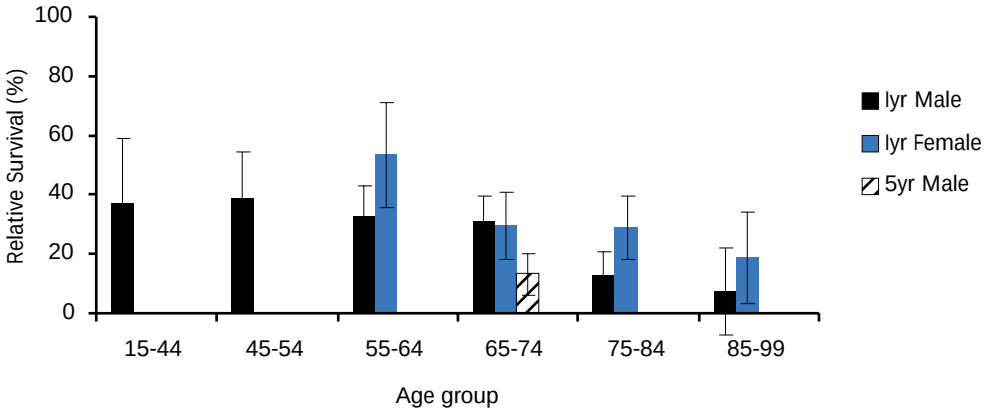


Table 3.2: Oesophageal cancer survival: Comparison by gender and age

The number of cases registered, the relative survival rates (%) and 95% confidence intervals at one, three and five years, for patients diagnosed 1993-6.

Gender	Age (years)	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival (%)	95% CI (+/-)
Both	15-99	578	30	4	14	3	13	3
	15-64	191	40	7	17	6	13	5
	65-99	387	25	5	13	4	13	4
Males	15-99	363	28	5	12	4	9	4
	15-64	147	35	8	14	6	—	—
	65-99	216	23	6	10	5	10	5
Females	15-99	215	33	7	19	6	19	7
	15-64	44	55	15	28	14	28	14
	65-99	171	27	7	16	6	16	7

Survival Comparisons

The five-year survival rate for men in Northern Ireland (9%) was similar to the rest of the UK but lower than the Republic of Ireland. However, women had much better survival with 19% surviving five years of follow-up compared with 8% in the rest of the UK and 15% in the Republic of Ireland (Table 3.3). On comparison with other European registries, our rates were similar (Table 3.4).

Table 3.3: Oesophageal cancer survival in the 1990s: Local comparisons

The period of diagnosis, the number of cases and the five-year relative survival rates (%) for patients aged 15-99.

		Males		Females	
Registry	Diagnosis Period	No. of cases	5-year Survival (%)	No. of cases	5-year Survival (%)
Northern Ireland	93-96	363	9	215	19
Scotland	91-95	1804	7	1489	8
England & Wales	91-93	8712	6	5947	7
Republic of Ireland	94-98	840	12	561	15

Table 3.4: Oesophageal cancer survival: Comparisons in Europe 1985-89

The number of cases diagnosed between 1985 and 1989, five-year relative survival rates (%) and corresponding 95% confidence intervals for the various European Registries.

		Males		Females	
Registry (% Population coverage)		No. of Cases	5-year Survival (95%CI)	No. of Cases	5-year Survival (95%CI)
Denmark*	(100%)	777	2 [1-4]	352	9 [6-14]
Finland*	(100%)	445	7 [5-10]	474	9 [6-13]
Austria, Tyrol	(7.8%)	28	17 [7-37]	4	0 [0-0]
French registries	(3.9%)	1137	8 [7-10]	102	14 [8-25]
Germany, Saarland	(1.7%)	196	6 [4-11]	47	14 [6-29]
Italian registries	(9.7%)	614	7 [5-10]	176	13 [8-20]
Dutch registries	(20.5%)	75	10 [4-20]	30	19 [8-38]
Spanish registries	(9.6%)	589	8 [6-11]	57	17 [8-32]
Sweden, South	(17.5%)	220	12 [8-17]	79	21 [13-34]

* These registries are national population-based registries.

Comment

The survival following diagnosis of oesophageal cancer depends on the stage of the disease and the person's general health, but is usually low. Over a quarter of patients survive one year but less than 10% of men and 20% of women survive five years. The survival figures for Northern Ireland were better than expected, but care should be taken when interpreting these rates as they had broad confidence intervals. In investigating the data, the diagnosis of patients was checked and found to be correct.

The major known risk factors for development of oesophageal squamous cancer are alcohol consumption (especially spirits) and cigarette smoking. These two risk factors exhibit a synergistic relationship i.e. if both are used together the rates increase more than would be expected from either on its own. High incidence and mortality levels in France, especially for males, and the association with raised rates of cancer of the tongue, mouth and throat fit well with the concept of this cancer being an alcohol related disease. Obesity and gastro oesophageal reflux have been recently recognised as important risk factors for oesophageal adenocarcinoma. These levels are rising in the developed world possibly reflecting increased obesity (15, 16)

Most countries in Europe have shown a rising trend in oesophageal cancer over the last thirty years, especially in males. It is suggested that this follows the changes in alcohol consumption in these countries, with a time lag of about ten years.

Cancer of the oesophagus, though rarely curable, has symptoms that can be well managed to enhance quality of life. The most common symptoms are difficulty or pain when swallowing.

A high consumption of fresh fruit and vegetables in the diet has been shown to be protective against oesophageal cancer (17). There is no population-screening test available for early detection of this disease. Additional research is needed to determine whether (i) there are causal factors other than smoking, alcohol and low levels of fresh fruit consumption, with a view to informing prevention and (ii) outcomes of treatment can be improved. Studies are ongoing in the NICR to determine predictors of whether a known high-risk state, Barrett's Oesophagus, is likely to become oesophageal cancer.

For Health Gain

- The population should be encouraged to stop smoking, eat a diet with a high content of fresh fruit and vegetables, moderate alcohol consumption and seek early diagnosis of symptoms.
- Participation in large clinical trials, which can advise on the best treatments, should be promoted.
- The organisation of services should be such as to ensure that those with the disease have as good an outcome as possible.
- The full range of palliative care services should be available for those with established disease.

Key Facts
- 167 men and 102 women are registered each year
- 116 men and 73 women die per year
- Similar survival rates for men or women
- 39% of men survive one year, 21% three years and 17% five years
- 34% of women survive one year, 20% three years and 19% five years
- Younger men have better survival rates than older men.

4. Cancer of the Stomach

ICD-9 151

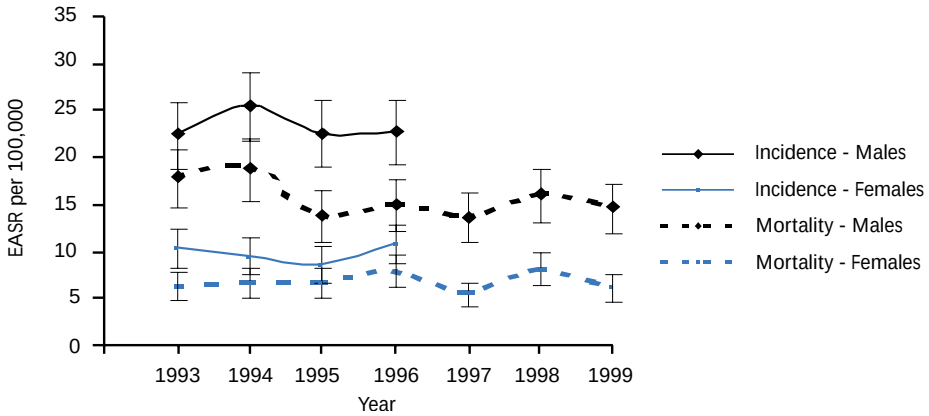
Incidence and Mortality

In 1996, stomach cancer was the seventh most common cancer in men and ninth in women, accounting for approximately 4% and 3% respectively of all cancers registered. Between 1993 and 1996, 167 men and 102 women were registered annually as having stomach cancer and an average of 116 men and 73 women died from the disease. There were no significant trends (P>0.05) in either the EASR incidence or mortality rates (Figure 4.1).

Table 4.1: Summary table for cancer of the stomach

Summary 1993-1996		Males	Females
Average annual number of stomach cancers registered		167	102
Average annual number of stomach cancer deaths		116	73
% cases excluded from survival analysis		4.9	6.8
Relative survival rates (Age-standardised rates) (%)			
	1-year	39 (39)	34 (37)
	3-year	21 (22)	20 (22)
	5-year	17 (17)	19 (19)

Figure 4.1: European age-standardised incidence and mortality rates of cancer of the stomach by gender



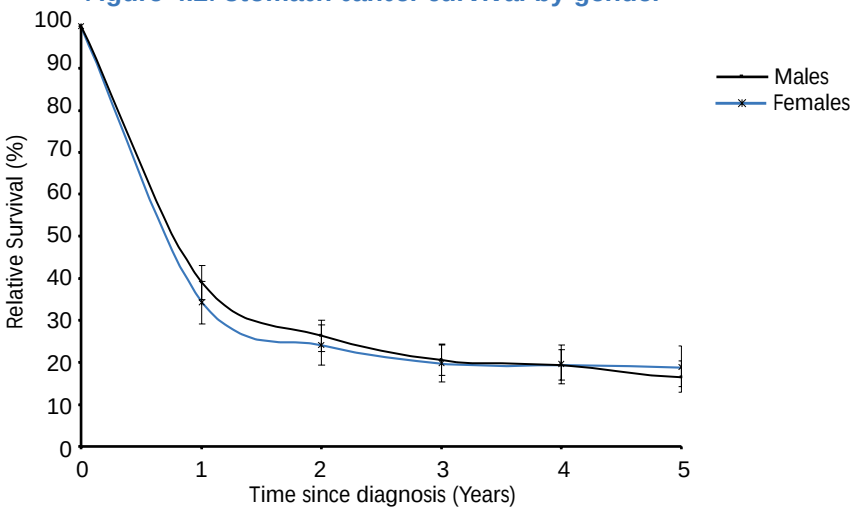
Survival

Overall survival rates for stomach cancer was poor with just over a third of patients surviving one year and less than 20% surviving five years.

Gender

There was no statistically significant difference (P>0.05) in survival rates between men and women. For men diagnosed between 1993 and 1996, 39% survived one year, 21% survived three years and 17% survived five years. The corresponding relative survival rates for women were 34%, 20% and 19% respectively (Table 4.2, Figure 4.2).

Figure 4.2: Stomach cancer survival by gender



Age

Survival was seen to decrease as age increased (Figure 4.3). Men diagnosed as having stomach cancer between 15 and 64 years had significantly better survival (P<0.05) than those aged 65 years or over, one-year relative survival was approximately 15% higher. There was no statistically significant difference (P>0.05) in women diagnosed as having stomach cancer between 15 and 64 years and those aged 65 years or over (Table 4.2).

Figure 4.3: Stomach cancer survival at one and five years by gender and age at diagnosis

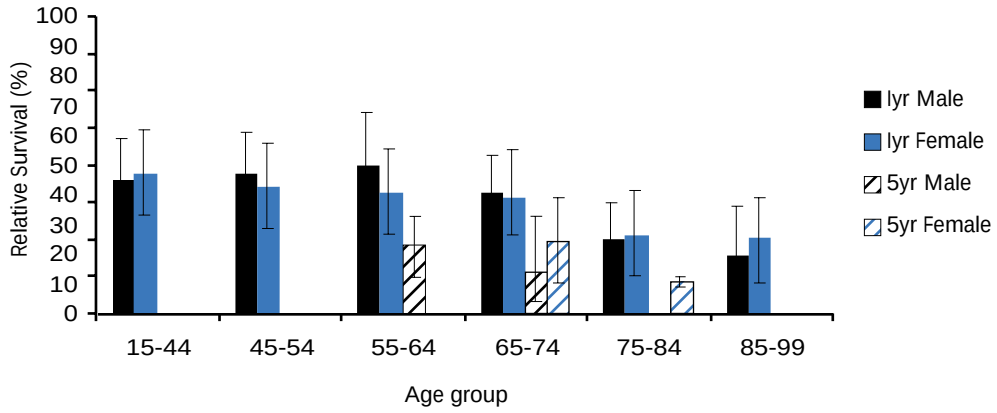


Table 4.2: Stomach cancer survival: Comparison by gender and age

The number of cases registered, the relative survival rates (%) and 95% confidence intervals at one, three and five years, for patients diagnosed 1993-6.

Gender	Age (years)	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival (%)	95% CI (+/-)
Both	15-99	1020	37	3	20	3	17	3
	15-64	302	46	6	26	5	23	5
	65-99	718	33	4	17	3	14	3
Males	15-99	640	39	4	21	4	17	4
	15-64	201	49	7	27	6	22	7
	65-99	439	34	5	17	4	13	4
Females	15-99	380	34	5	20	4	19	5
	15-64	101	42	10	24	9	25	9
	65-99	279	31	6	18	5	16	6

Survival Comparisons

Our five-year survival rates were at least 6% higher than the rest of the UK (Table 4.3). On comparing our rates with the other European national population-based registries (the Republic of Ireland, Denmark and Finland) survival was broadly similar. Many of the other European registries had better survival, even though this was for an earlier time period and it is expected that these rates would improve (Table 4.4).

Table 4.3: Stomach cancer survival in the 1990s: Local comparisons

The period of diagnosis, the number of cases registered and the five-year relative survival rates (%) for patients aged 15-99.

		Males		Females	
Registry	Diagnosis Period	No. of cases	5-year Survival (%)	No. of cases	5-year Survival (%)
Northern Ireland	93-96	640	17	380	19
Scotland	91-95	2825	11	1897	11
England & Wales	91-93	15848	10	9198	11
Republic of Ireland	94-98	1422	16	828	21

Table 4.4: Stomach cancer survival: Comparisons in Europe 1985-89

The number of cases diagnosed between 1985 and 1989, five-year relative survival rates (%) and corresponding 95% confidence limits for various European Registries

		Males		Females	
Registry (% Population coverage)		No. of Cases	5-year Survival (95%CI)	No. of Cases	5-year Survival (95%CI)
Denmark*	(100%)	2110	13 [11-15]	1435	15 [13-17]
Finland*	(100%)	2553	21 [19-23]	2257	20 [19-22]
Austria, Tyrol	(7.8%)	174	25 [18-33]	188	31 [24-39]
French registries	(3.9%)	913	25 [22-29]	566	26 [21-30]
Germany, Saarland	(1.7%)	686	26 [22-30]	621	27 [23-32]
Italian registries	(9.7%)	4997	22 [20-23]	3521	27 [25-29]
Dutch registries	(20.5%)	632	19 [16-24]	394	21 [17-26]
Spanish registries	(9.6%)	1923	28 [26-31]	1092	29 [26-32]
Sweden, South	(17.5%)	823	18 [15-21]	453	17 [13-21]

* These registries are national population-based registries.

Comment

Survival following diagnosis of stomach cancer is usually poor. Less than 40% of patients survive one year and only about 17% survive five years. Stomach cancer rates vary with social class, with a higher rate of disease associated with those in the lower social classes. Risk factors include tobacco use, low consumption of fresh fruit and vegetables and infection by the bacterium *Helicobacter pylori*, all of which are more likely in the manual classes. It is known that the prevalence rates of *Helicobacter pylori*, a bacteria found in the stomach, are particularly high in the Northern Ireland population (18). Factors which are thought to have contributed to the fall in deaths from stomach cancer include the greater availability of refrigeration which has increased availability of fruit and vegetables throughout the year, and reduced the need for salting and pickling to preserve food. There have also been advances in detection and treatment. There is no population-screening test available for early detection of this disease. Ongoing research is investigating whether the control of the *Helicobacter pylori* will prevent the disease.

Clinical trials continue to investigate whether treatments can be improved.

For Health Gain

- The population should be encouraged to reduce tobacco use, eat a diet with a high content of fresh fruit and vegetables and seek an early diagnosis of symptoms.
- Further research into the role *Helicobacter pylori* infection plays in the aetiology of gastric cancer should be encouraged.
- Participation in clinical trials, which can advise on the best treatments, should be enhanced.
- The organisation of services should be such as to ensure that those with the disease have as good an outcome as possible.
- The full range of palliative care services should be available for those with established disease.

Key Facts Colorectal Cancers

- 486 men and 464 women are registered per year (colon 307 men, 326 women, rectum 179 men, 138 women): Incidence rates in men are falling
- 225 men and 218 women die per year (colon 164 men, 166 women, rectum 61 men, 52 women): Death rates in women are falling (driven by falling rates of colon cancer)
- Similar survival rates for men and women
- 72% of men survived one year, 55% three years, 49% five years
- 70% of women survived one year, 54% three years, 50% five years
- Younger men and women had better survival rates than older people
- Better survival with earlier stage; 100% survive one year with Stage I disease compared to 47% of patients with Stage IV disease

5. Colorectal Cancers

Cancer of the colon ICD-9 153 and cancer of the rectum ICD-9 154

These cancers are considered,
a) combined
b) separately in this chapter.

Incidence and Mortality

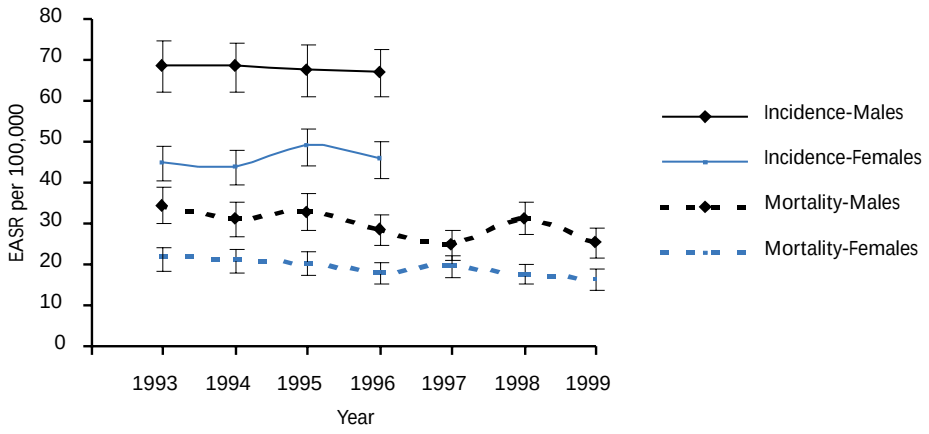
An average of 486 males and 464 females are diagnosed as having colorectal cancer each year i.e. approximately 12% and 10% respectively of all cancers registered. Northern Ireland's standardised incidence rate for colorectal cancer is over 40% higher than England & Wales (2). Standardised death rates are also 15% higher (1). The EASR incidence rates of colorectal cancer in males from 1993 to 1996 decreased significantly (P<0.05) by an average of 0.6 cases per 100,000 per year. There was no statistically significant (P>0.05) trend in the incidence EASR for females (Figure 5.1).

The average number of males and females dying from colorectal cancer each year was 225 and 218 respectively. Between 1993 and 1999, there was no statistically significant (P>0.05) trend in mortality EASRs for men. Women, however, exhibited a statistically significant downward trend (P<0.01), with the standardised mortality rate decreasing by 0.8 cases per 100,000 per year (Figure 5.1).

Table 5.1: Summary table for colorectal cancer

Summary 1993-1996		Males	Females
Average annual number of colorectal cancers registered		486	464
Average annual number of colorectal deaths		225	218
% cases excluded from survival analysis		0.3	0.5
Relative survival rates (Age-standardised rates) (%)			
	1-year	72 (71)	70 (70)
	3-year	55 (54)	54 (53)
	5-year	49 (48)	50 (49)

Figure 5.1: European age-standardised incidence and mortality rates of colorectal cancer by gender



Survival

Overall survival for colorectal cancer was moderately good with over 70% of patients surviving one year and almost 50% surviving five years.

Gender

There was no statistically significant difference (P>0.05) in survival rates between men and women. For men diagnosed between 1993 and 1996 as having colorectal cancer, 72% survived one year, 55% three years and 49% five years. The corresponding relative survival rates for women were 70%, 54% and 50% respectively (Table 5.2).

Age

Survival was seen to decrease with increasing age (Figure 5.2). For both men and women with colorectal cancer, there were statistically significant differences (P<0.05 men and P<0.001 women) between the survival rates of those diagnosed before their 65th birthday and those diagnosed at 65 years or older. Men aged below 65 years had approximately 8% higher one-year survival rates than those aged 65 years and over, whilst for women the improvement in the younger age band was 12% (Table 5.2).

Figure 5.2: Colorectal cancer survival at one and five years by gender and age at diagnosis

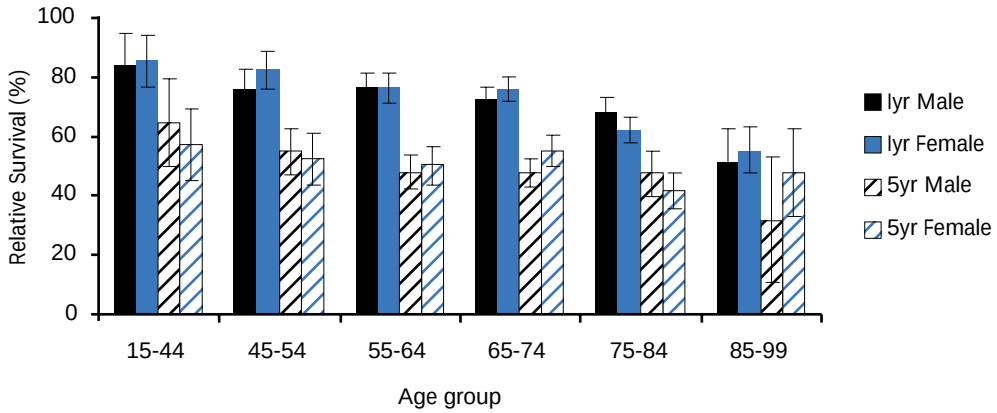


Table 5.2: Colorectal cancer survival: Comparison by gender and age

The number of cases registered, the relative survival rates (%) and 95% confidence intervals at one, three and five years, for patients diagnosed 1993-6.

Gender	Age (years)	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival (%)	95% (+/-)
Both	15-99	3661	71	2	54	2	49	2
	15-64	1123	78	3	58	3	51	3
	65-99	2538	68	2	53	2	48	3
Males	15-99	1886	72	2	55	4	49	3
	15-64	603	77	4	58	4	51	5
	65-99	1283	69	3	53	3	47	4
Females	15-99	1775	70	2	54	3	50	3
	15-64	520	79	4	59	4	52	5
	65-99	1255	67	3	52	3	49	4

Staging

Staging information was available for only 55% of the tumours, which were classified as being either stage I, II, III or IV (I being the earliest disease) (see Appendix 2 regarding Staging). The effect of stage on the relative survival rates was found to be very highly statistically significant (P<0.001), with, as expected, better survival associated with an earlier stage (Figure 5.3). For example, the five-year relative survival rates for Stage I, II, III, IV and unclassified were 99%, 78%, 36%, 13% and 40% respectively (Table 5.3).

Figure 5.3: Colorectal cancer survival by stage

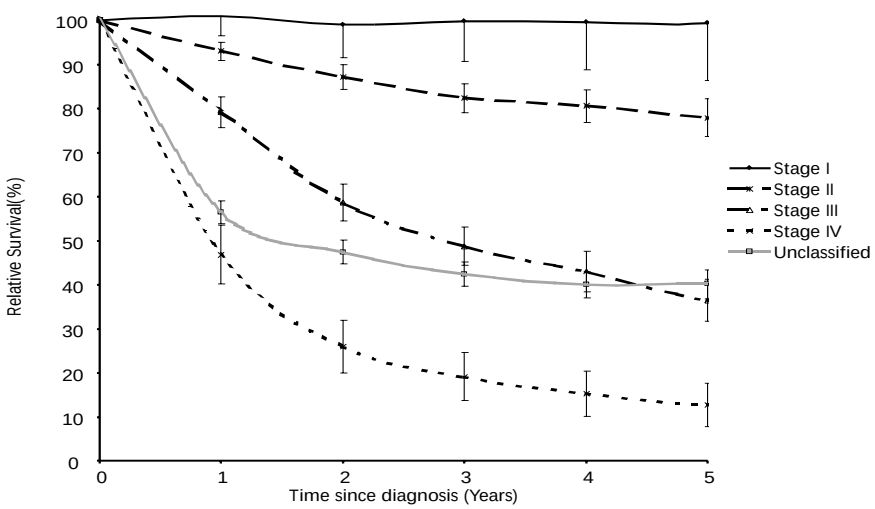


Table 5.3: Colorectal cancer survival: Comparison by stage.

The number of cases registered, the relative survival rates (%) and 95% confidence intervals at one, three and five years, for patients diagnosed 1993-6.

Stage	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival	95% (+/-) (%)
I	78	100	5	100	9	99	13
II	1016	93	2	82	3	78	4
III	684	79	3	49	4	36	5
IV	242	47	7	19	5	13	5
Unclassified	1641	56	3	42	3	40	3

Survival Comparisons

Survival from colorectal cancer was marginally better here than Scotland (Table 5.4) and broadly similar to the Republic of Ireland and those reported by many of the other European Registries (Table 5.5). Comparison with England and Wales is covered individually for colon and rectum.

Table 5.4: Colorectal cancer survival in the 1990s: Local comparisons

The period of diagnosis, the number of cases registered and the five-year relative survival rates (%) for patients aged 15-99 years.

		Males		Females	
Registry	Diagnosis Period	No. of cases	5-year Survival (%)	No. of cases	5-year Survival (%)
Northern Ireland	93-96	1886	48	1775	49
Scotland	91-95	7233	43	7188	45
Republic of Ireland	94-98	4739	47	3607	51

Table 5.5: Colorectal cancer survival: Comparisons in Europe 1985-89

The number of cases registered between 1985 and 1989, five-year relative survival rates (%) and corresponding 95% confidence intervals for various European Registries

		Males		Females	
Registry (% Population coverage)		No. of Cases	5-year Survival (95%CI)	No. of Cases	5-year Survival (95%CI)
Denmark*	(100%)	7643	40 [37-41]	8064	43 [41-44]
Finland*	(100%)	3108	49 [46-52]	3838	50 [47-53]
Austria, Tyrol	(7.8%)	216	52 [42-63]	267	46 [37-57]
French registries	(3.9%)	2450	51 [47-54]	2135	53 [48-56]
Germany, Saarland	(1.7%)	1485	48 [43-53]	1707	49 [45-53]
Italian registries	(9.7%)	6152	47 [45-49]	6028	47 [45-49]
Dutch registries	(20.5%)	1974	56 [52-60]	1922	56 [52-60]
Spanish registries	(9.6%)	2719	47 [43-50]	2173	48 [44-51]
Sweden, South	(17.5%)	2016	51 [47-55]	1994	54 [51-58]

* These registries are national population-based registries.

For Commentary see Colon Cancer.

Cancer of the Colon

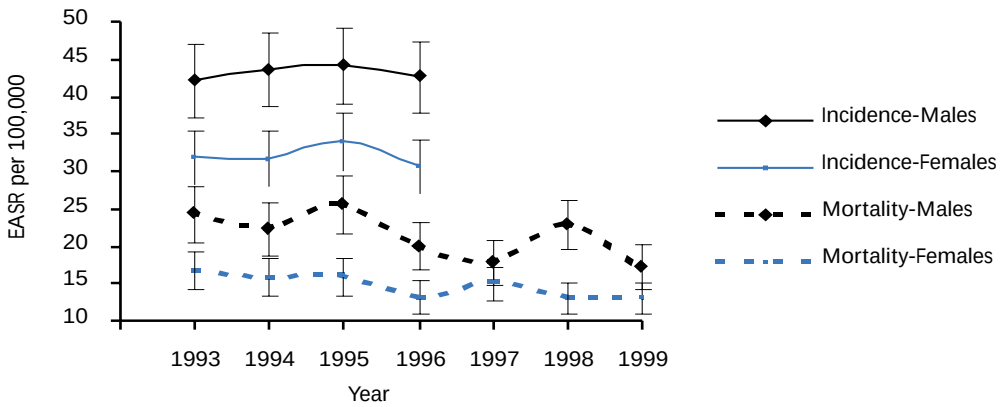
Incidence and Mortality

In 1996, cancer of the colon was the fourth most common cancer in men and third most common cancer in women, accounting for approximately 7% of all cancers registered. Between 1993 and 1996, an average of 307 men and 326 women were diagnosed annually as having cancer of the colon, with approximately 164 men and 166 women dying each year from the disease. There were no statistically significant (P>0.05) trends in the incidence EASR for men or women (Figure 5.6). Women however exhibited a statistically significant downward trend (P<0.05) in mortality EASRs, between 1993 and 1999 with the standardised mortality rate decreasing by 0.6 cases per 100,000 per year (Figure 5.4).

Table 5.6: Summary table for cancer of the colon

Summary 1993-1996	Males	Females
Average annual number of colon cancers registered	307	326
Average annual number of colon cancer deaths	164	166
% cases excluded from survival analysis	5.1	5.2
Relative survival rates (Age-standardised rates) (%)		
1-year	71 (71)	69 (68)
3-year	54 (54)	55 (55)
5-year	49 (50)	51 (51)

Figure 5.4: European age-standardised incidence and mortality rates of colon cancer by gender



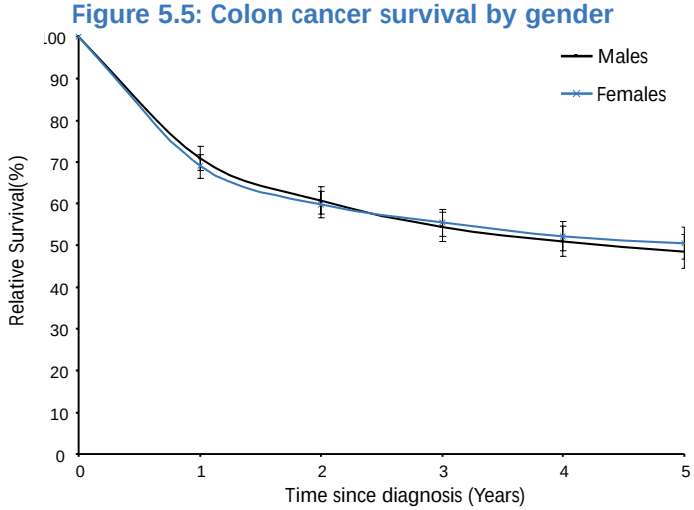
Survival

Survival from colon cancer was moderately good with 70% survival at one year and 50% survival at five years.

Gender

There was no statistically significant difference (P>0.05) in survival rates between men and women. For men diagnosed between 1993 and 1996 as having cancer of the colon, 71% survived one year, 54% three years and 49% five years. The corresponding relative survival rates for women were 69%, 55% and 51% respectively (Table 5.7) (Figure 5.5).

Figure 5.5: Colon cancer survival by gender



Age

There was little change in survival as age increased (Figure 5.6). For both men and women, there was no statistically significant difference (P>0.05) in the survival of patients diagnosed as having cancer of the colon before their 65th birthday and those aged 65 years or older when diagnosed.

Figure 5.6: Colon cancer survival at one and five years by gender and age at diagnosis

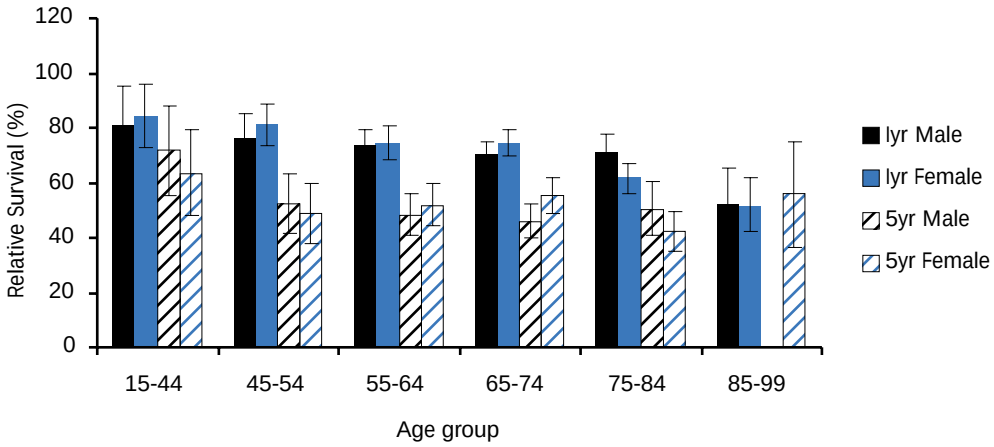


Table 5.7: Colon cancer survival: Comparison by gender and age

The number of cases registered, the relative survival rate (%) and 95% confidence intervals at one, three and five years, for patients diagnosed 1993-6.

Gender	Age (years)	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival (%)	95% CI (+/-)
Both	15-99	2410	70	2	55	2	50	3
	15-64	707	76	3	58	4	52	4
	65-99	1703	67	3	54	3	48	4
Males	15-99	1176	71	3	54	3	49	4
	15-64	351	75	5	58	6	52	6
	65-99	825	69	4	53	4	47	5
Females	15-99	1234	69	3	55	3	51	4
	15-64	356	77	4	58	5	52	6
	65-99	878	65	3	54	4	50	5

Survival Comparisons

Our five-year survival rates for colon cancer were about 4% better than the rest of the UK and similar to the Republic of Ireland (Table 5.8). Comparisons with other European registries are covered in the colorectal chapter, where similar five year survival figures were found.

Table 5.8: Colon cancer survival in the 1990s: Local comparisons

The period of diagnosis, the number of cases registered and the five-year relative survival rates (%) for patients aged 15-99 years.

		Males		Females	
Registry	Diagnosis Period	No. of cases	5-year Survival (%)	No. of cases	5-year Survival (%)
Northern Ireland	93-96	1176	49	1234	51
Scotland	91-95	4517	45	5098	45
England & Wales	91-93	22164	42	24239	40
Republic of Ireland	94-98	2759	49	2462	52

Cancer of the Rectum

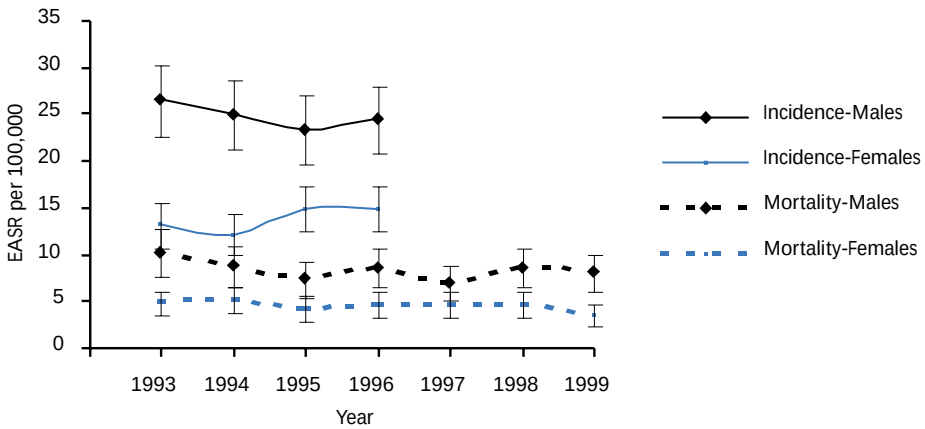
Incidence and Mortality

In 1996, cancer of the rectum was the sixth most common cancer in men and women, accounting for approximately 4% and 3% respectively of all cancers registered. Between 1993 and 1996, 179 men and 138 women were diagnosed annually as having cancer of the rectum. The average number of men and women dying from cancer of the rectum annually was 61 and 52 respectively (see table 5.9). There were no statistically significant (P>0.05) trends in either the incidence or mortality EASR for men and women (Figure 5.6).

Table 5.9: Summary table for cancer of the rectum

Summary 1993-1996	Males	Females
Average annual number of rectal cancers registered	179	138
Average annual number of rectal cancer deaths	61	52
% cases excluded from survival analysis	0.7	2.0
Relative survival rates (Age-standardised rates) (%)		
1-year	74 (71)	74 (73)
3-year	55 (54)	51 (50)
5-year	49 (45)	48 (46)

Figure 5.7: European age-standardised incidence and mortality rates of cancer of the rectum by gender



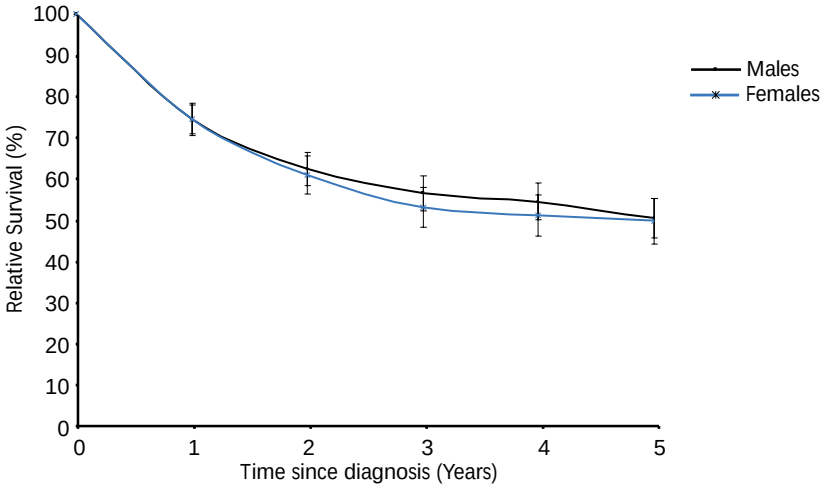
Survival

Overall survival was moderately good with almost three-quarters of patients alive after one year and almost 50% alive after five years.

Gender

There was no statistically significant difference (P>0.05) in survival rates between men and women. For men diagnosed between 1993 and 1996 as having cancer of the rectum, 74% survived one year, 55% three years and 49% five years. The corresponding relative survival rates for women were 74%, 51% and 48% respectively (Table 5.10) (Figure 5.8).

Figure 5.8: Rectal cancer survival by gender



Age

There was only a slight drop off in survival rates as age increased (Figure 5.9). For men, there was no statistically significant difference (P>0.05) between the survival rates of patients aged below 65 years and those aged 65 years or over. There was however, a statistically significant difference (P<0.05) between the survival rates of women diagnosed with rectal cancer before their 65th birthday and those diagnosed at 65 years or older. Women aged below 65 years had approximately 14% higher one-year survival than those aged 65 years and over (Table 5.10).

Figure 5.9: Rectal cancer survival at one and five years by gender and age at diagnosis

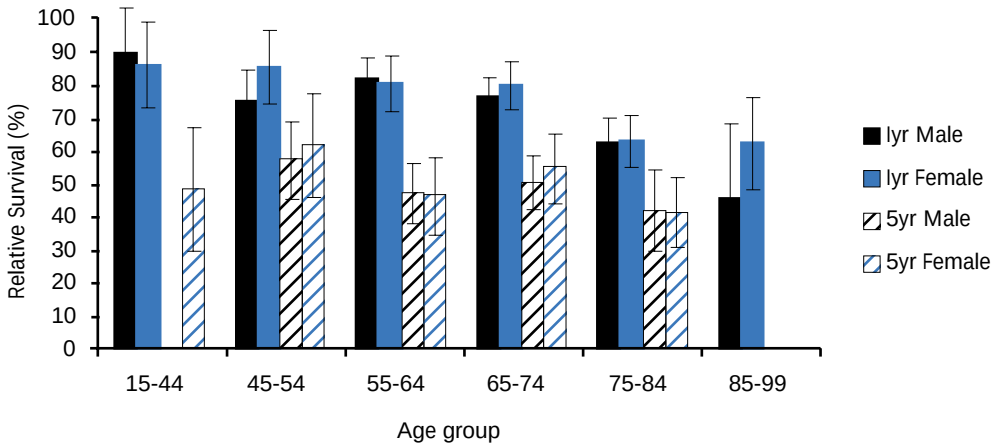


Table 5.10: Rectal cancer survival: Comparison by gender and age

The number of cases registered, the relative survival rates (%) and 95% confidence intervals at one, three and five years, for patients diagnosed 1993-6.

Gender	Age (years)	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival (%)	95% CI (+/-)
Both	15-99	1251	74	3	53	3	48	4
	15-64	416	81	4	59	5	51	5
	65-99	835	70	4	50	4	47	5
Males	15-99	710	74	4	55	4	49	5
	15-64	252	80	5	58	6	51	7
	65-99	458	70	5	53	6	47	7
Females	15-99	541	74	4	51	5	48	6
	15-64	164	83	6	60	8	51	9
	65-99	377	69	5	47	6	47	7

Survival Comparisons

Our five-year survival rates for cancer of the rectum were better than our near neighbours (see Table 5.11). Comparisons with other European registries are covered earlier, where similar five year survival figures were found.

Table 5.11: Rectal cancer survival in the 1990s: Local comparisons

The period of diagnosis, the number of cases registered and the five-year relative survival rates (%) for patients aged 15-99 years.

		Males		Females	
Registry	Diagnosis Period	No. of cases	5-year Survival (%)	No. of cases	5-year Survival (%)
Northern Ireland	93-96	710	49	541	48
Scotland	91-95	2716	43	2090	45
England & Wales	91-93	16807	39	12281	43
Republic of Ireland	94-98	653	43	1127	46

Comment

Survival from colonic and rectal cancer are similar and relatively high with over 70% of patients surviving one year and 50% surviving five years.

The cause of colonic cancer is not completely understood and it is likely due to many factors. There are at least three broadly agreed factors.

(i) For the vast majority of cases of colon cancer environmental factors are most important. The evidence for this comes primarily from migration studies where migrants from countries with low levels of cancer, develop the higher rates of their adopted country over the course of one or two generations. Perhaps two-thirds of all new cases of colorectal cancer in the world occur in westernised countries which contain only about a quarter of the world's population. Dietary factors which are thought to contribute to colonic cancer include a lack of dietary fibre, high fat intake and a low intake of fruit and vegetables. There is also a social gradient evident, with the risk of colonic cancer tending to be higher in higher social classes (opposite to the pattern for that of stomach cancer).

(ii) Genetic factors are increasingly being recognised as important and these divide into two main groups (a) those associated with hereditary *Polyposis coli* and (b) those associated with hereditary non-polyposis colorectal cancer. The risk of an individual developing colorectal cancer is also dependent on the number of first degree relatives who are similarly affected.

(iii) It is also known that chronic bowel diseases, especially ulcerative colitis, are associated with increased risk of colorectal cancer. The risk of cancer is proportional to the extent and length of time the person has the disease.

Colonic cancer is a common, potentially fatal disease and early intervention can significantly affect the outcome, as demonstrated by our figures of survival by stage for colorectal cancer. Two major European trials have been completed recently, showing that population screening based on testing of faeces for the presence of blood (e.g. Haemoccult test) and follow-up investigation are effective in reducing mortality from colorectal cancer. The UK trial showed that the test was able to detect some asymptomatic, early-stage carcinomas and potentially malignant adenomas. Results of this trial point to a potential 15% reduction in mortality (19). The Danish trial showed a similar reduction in mortality in the screened group of patients compared to controls (20). Consideration is now being given to the cost effectiveness of such screening.

Other screening methods being evaluated include the use of flexible sigmoidoscopy to view the rectum, the rectosigmoid junction and the sigmoid colon. A UK multi-centre trial (MRC) is evaluating this as a form of population screening (21). People aged 55 to 64 years will be invited to undergo a once-only flexible sigmoidoscopy. The acceptability of such a test and the associated risks are important considerations.
It is easier to make a case for screening high-risk individuals. Patients with ulcerative colitis and those with familial *Polyposis coli* are recommended to have regular colonoscopies and relatives at increased risk of familial colorectal cancer should also have regular surveillance.

Those worried should contact their own GP for advice.

For Health Gain

- The population should consume five portions of fruit or vegetables per day, eat a high fibre and lower fat diet. Advice from the World Cancer Research Fund indicates we should cut meat consumption to under 80 grams per day (22)
- There should be increased population awareness that changes in bowel habit, weight loss or passing blood per rectum require urgent investigations.
- Those with a family history of cancer of the colon, especially of a young relative, should contact specialists about the advisability of regular surveillance.
- Participation in clinical trials, which can advise on the best treatments, should be enhanced.
- The organisation of services should be such as to ensure those with the disease have the best chance of a good outcome.
- The full range of palliative care services should be available for those with established disease.

Key Facts
- 578 males and 317 females are registered per year
- 513 male and 267 female deaths per year: Death rates in men are falling
- 23% of men survive one year, 10% three years and 8% five years
- 26% of women survive one year, 12% three years and 10% five years
- Better survival in women than men (4% higher at one year)
- Younger men have a better survival rate than older men
- Non-small cell lung cancer has a better survival rate than small cell

6. Cancer of the Lung

ICD-9 162 includes cancer of the trachea, bronchus and lung, referred to in this chapter simply as cancer of the lung

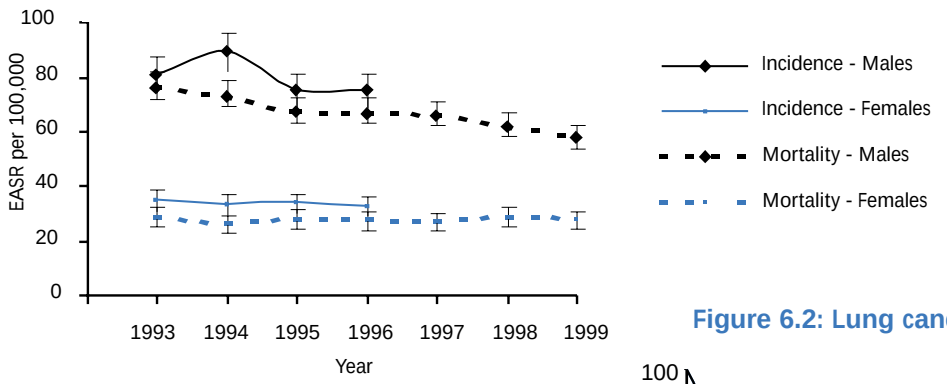
Incidence and Mortality

In 1996, excluding non-melanoma skins, lung cancer was the most common cancer in men and third most common in women, accounting for 13% and 7% respectively of all cancers registered. Between 1993 and 1996, an average of 578 males and 317 females were diagnosed each year and approximately 513 males and 267 females died annually from the disease. During this period, there were no statistically significant (P>0.05) trends in the EASR incidence rates for either sex (Figure 6.1). There was a very highly statistically significant (P<0.001) downward trend in EASR mortality rates for males, corresponding to an average decrease of almost 3 cases per 100,000 population per year. There was no statistically significant (P>0.05) trend in women (Figure 6.1). In 1997, deaths from lung cancer became, for the first time, more common than deaths from breast cancer.

Table 6.1: Summary table for cancer of the lung

Summary 1993-1996	Males	Females
Average annual number of lung cancers registered	578	317
Average annual number of lung cancer deaths	513	267
% cases excluded from survival analysis	5.1	5.5
Relative survival rates (Age-standardised rates) (%)		
1-year	23 (24)	26 (24)
3-year	10 (11)	12 (11)
5-year	8 (9)	10 (9)

Figure 6.1: European age-standardised incidence and mortality rates of cancer of the lung by gender



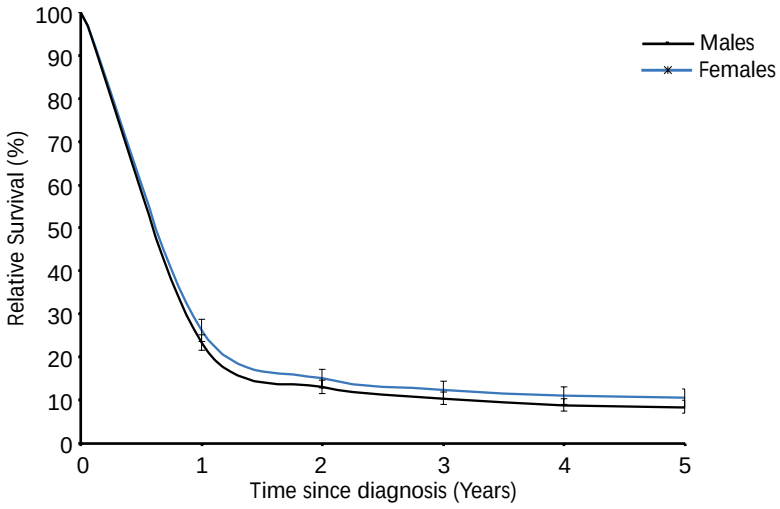
Survival

Overall survival was very poor with about a quarter of patients alive at one year following diagnosis and about 9% alive five years after diagnosis.

Gender

There was a very highly statistically significant difference (P<0.001) in survival rates between men and women, with women having better survival than men. For men diagnosed between 1993 and 1996 as having cancer of the lung, 23% survived one year, 10% survived three years and 8% survived five years. The corresponding relative survival rates for women were 26%, 12% and 10% respectively (Figure 6.2, Table 6.2).

Figure 6.2: Lung cancer survival by gender



Age

The percentage of patients surviving decreased as their age at diagnosis increased (Figure 6.3). Men diagnosed as having lung cancer before their 65th birthday had very highly significantly better survival (P<0.001) than those aged 65 years or over, even after taking account of higher rates of mortality in the older population. For men, one-year relative survival was 10% higher in the under 65 age group than in the 65 and over. There was no statistically significant (P>0.05) difference between the survival rates of the two age groups in women (Table 6.2).

Figure 6.3: Lung cancer survival at one and five years by gender and age at diagnosis

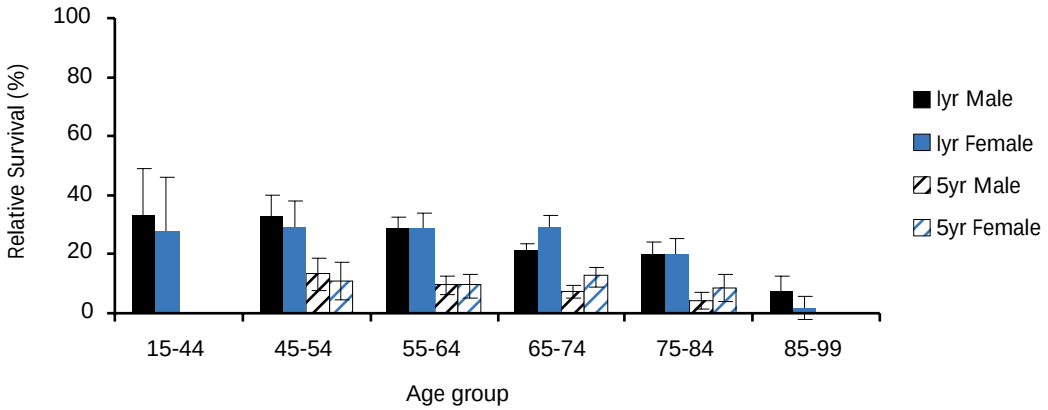


Table 6.2: Lung cancer survival: Comparison by gender and age

The number of cases registered, the relative survival rates (%) and 95% confidence intervals at one, three and five years, for patients diagnosed 1993-6.

Gender	Age (years)	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival (%)	95% CI (+/-)
Both	15-99	3364	24	2	11	1	9	1
	15-64	1056	29	3	13	2	11	2
	65-99	2308	22	2	10	1	8	1
Males	15-99	2186	23	2	10	1	8	1
	15-64	671	30	4	14	3	12	3
	65-99	1515	20	2	8	2	6	2
Females	15-99	1178	26	3	12	2	10	2
	15-64	385	29	5	12	3	10	3
	65-99	793	25	3	12	3	11	3

Cell type

Based on pathology reports, the cell type for each tumour was classified as being non-small cell, small cell and unknown without microscopic verification (NMV). The non-small cell category consisted of squamous cell, adenocarcinoma, large cell, other and unspecified (Table 6.3).

Table 6.3: Frequency of lung cancer cell types 1993-1996

Cell Type	Number (%)
1.Non-small	
Squamous cell	740 (22)
Adenocarcinoma	345 (10)
Large Cell	51 (2)
Other	446 (13)
Unspecified	270 (8)
Total	1852 (55)
2. Small	394 (12)
3. Unknown (Non microscopically verified)	1118 (33)

The effect of cell type on the relative survival rates of men and women was found to be very highly statistically significant (P<0.001), with better survival associated with non-small cell. For example, the percentage of men alive after one year of follow-up was 29% (non-small cell), 18% (small cell) and 13% (unknown without microscopic verification) (Table 6.4, Figure 6.4). For women, the corresponding figures were 32% (non-small cell), 24% (small cell) and 17% (unknown without microscopic verification) (Table 6.4, Figure 6.5).

Table 6.4: Lung cancer survival: Comparison by gender and cell type

The number of cases registered, the relative survival rates (%) and 95% confidence intervals at one, three and five years, for patients diagnosed 1993-6.

Gender	Cell Type	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival (%)	95% CI (+/-)
Males	Non Small	1238	29	3	13	2	11	2
	Small	239	18	5	4	3	—	—
	Unknown (NMV)	709	13	3	7	2	5	2
Females	Non Small	614	32	4	17	3	15	3
	Small	155	24	7	—	—	—	—
	Unknown (NMV)	409	17	4	8	3	5	3

Figure 6.4: Lung cancer survival in men by cell type

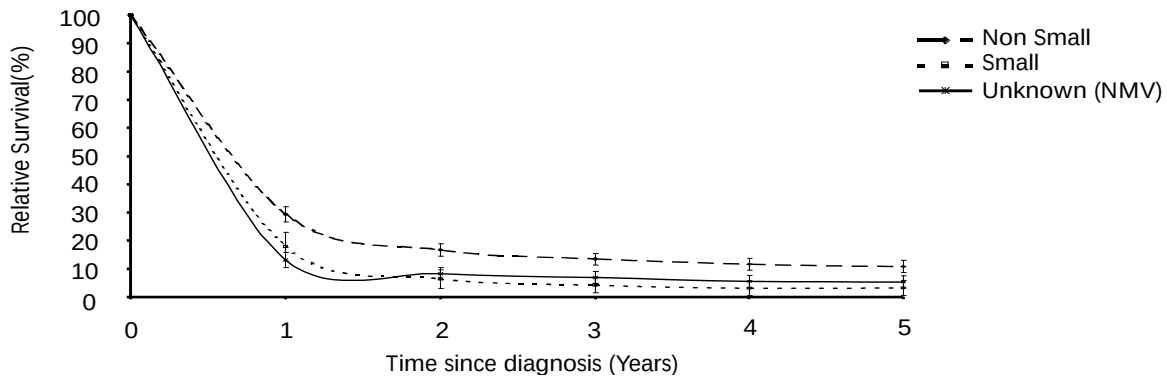
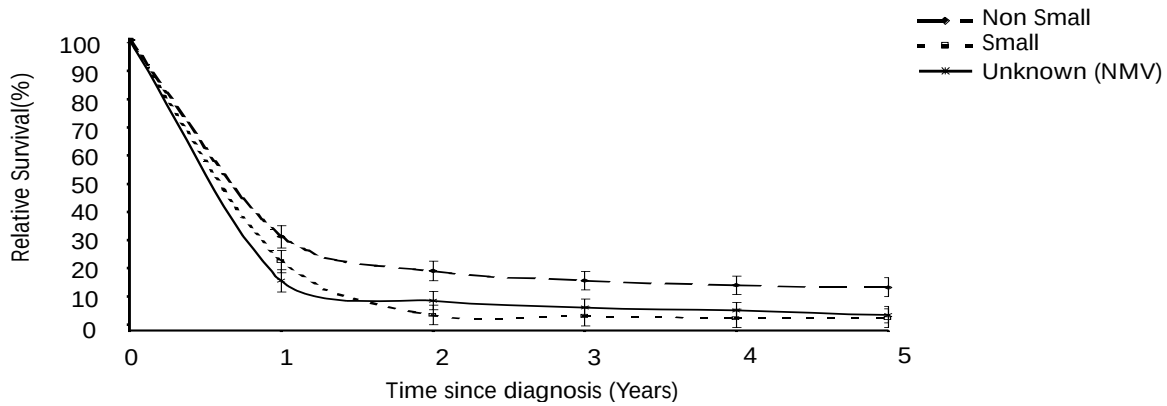


Figure 6.5: Lung cancer survival in women by cell type



Survival Comparisons

Our five-year survival rate for men (8%) was slightly higher than the rest of the UK and the same as the Republic of Ireland, whilst for women (10%), it was double that of England and Wales but similar to the Republic of Ireland (Table 6.5). This may relate in part to comparing different time periods. Additionally, other European registries (Table 6.6) had much better five-year survival rates than here and in particular the rest of the UK. Note the information from the European registries relates to the 1980s and is likely to have improved further.

Table 6.5: Lung cancer survival in the 1990s: Local comparisons

The period of diagnosis, the number of cases registered and the five-year relative survival rates (%) for patients aged 15-99.

		Males		Females	
Registry	Diagnosis Period	No. of cases	5-year Survival (%)	No. of cases	5-year Survival (%)
Northern Ireland	93-96	2186	8	1178	10
Scotland	91-95	13122	6	7729	5
England & Wales	91-93	60300	5	29052	5
Republic of Ireland	94-98	4696	8	2450	11

Table 6.6: Lung cancer survival: Comparisons in Europe 1985-89

The number of cases diagnosed between 1985 and 1989, five-year relative survival rates (%) and corresponding 95% confidence intervals for various European Registries

		Males		Females	
Registry (% Population coverage)		No. of Cases	5-year Survival (95%CI)	No. of Cases	5-year Survival (95%CI)
Denmark*	(100%)	10466	6 [6-6]	4929	7 [6-7]
Finland*	(100%)	8017	11 [10-12]	1492	12 [10-14]
Austria, Tyrol	(7.8%)	391	11 [8-15]	96	15 [9-24]
French registries	(3.9%)	2594	13 [12-14]	251	20 [15-26]
Germany, Saarland	(1.7%)	2202	10 [8-11]	372	15 [12-20]
Italian registries	(9.7%)	10587	10 [9-10]	1883	11 [9-12]
Dutch registries	(20.5%)	2057	12 [11-14]	276	14 [10-19]
Spanish registries	(9.6%)	4146	13 [11-14]	333	15 [11-20]
Sweden, South	(17.5%)	1609	9 [8-11]	579	11 [9-14]

* These registries are national population-based registries.

Comment

Cancer of the lung, though rarely curable, has symptoms that can be well managed to enhance quality of life. The survival following diagnosis depends on the stage of the disease and the person's general health, but is usually poor. Over a quarter of patients survive one year but less than 10% survive five years.

Tobacco smoking causes over 90% of all lung cancers. The geographical distribution of the incidence and mortality and the recent trends that are seen throughout Europe are largely explained by differences in smoking patterns. Because of the delay between exposure and disease presentation, even better correlations are found between rates of lung cancer now and smoking patterns that existed twenty to thirty years ago.

Smoking is more common in lower socio-economic groups. In Northern Ireland there are large pockets of deprivation (a good surrogate indicator for smoking levels in the population) to be found in the cities of Belfast and Londonderry. This may explain previously reported higher levels of lung cancer in these areas (2). In Western Europe smoking is becoming much less popular and the falling smoking prevalence is matched by a corresponding fall in new cases and deaths from lung cancer. In Eastern Europe smoking levels are high and increasing and these countries have been experiencing marked rises in lung cancer.

Exposure to Radon gas must also be considered among the risks for lung cancer. Radon gas is released from the earth particularly in granite areas. This usually escapes to the atmosphere and becomes undetectable. High levels may however, be found in poorly ventilated houses in granite areas.

Certain occupations also carry an increased risk of lung cancer, though it is often difficult to separate the effects from those associated with smoking. Exposure to potential carcinogens at work, e.g. electroplaters, labourers in coke ovens or occupations associated with asbestos, increases the risk of lung cancer. Environmental tobacco smoke exposure (passive smoking) is now known to contribute to lung cancer risk and may explain part of the excess risk of lung cancer found amongst publicans and bar staff.

There is no population-screening test for this disease.

For Health Gain

The focus for reducing incidence and deaths from lung cancer must be on prevention.

- Actions to reduce smoking levels include:
  - Reducing the numbers who start to smoke by banning advertising, increasing taxation, reducing availability of tobacco products and enhancing health education.
  - Helping those who smoke to stop.
  - Controlling environmental (passive) tobacco smoke.
- Those who smoke or who have smoked should seek early diagnosis of symptoms such as cough, pain, coughing up blood, as early diagnosis and prompt treatment improves survival.
- Participation in clinical trials, which can advise on the best treatments, should be enhanced.
- The organisation of services should be such as to ensure that those with the disease have as good an outcome as possible.
- The full range of palliative care services should be available for those with established disease.

Key Facts
- 69 men and 112 women are registered each year
- 10 men and 18 women die each year
- Similar survival rates for men and women
- 97% of men survive one year, 90% three years and 87% five years
- 97% of women survive one year, 92% three years and 92% five years
- Improved survival with early disease presentation.

7. Malignant Melanoma

ICD-9 172

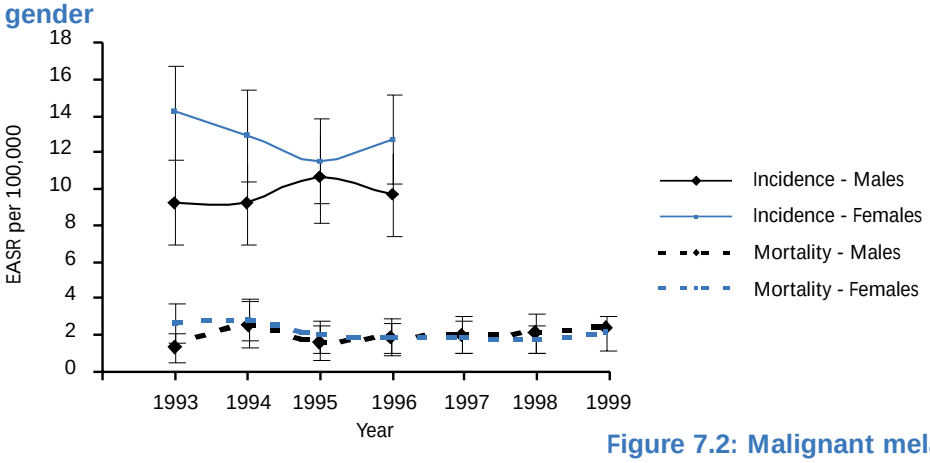
Incidence and Mortality

In 1996, malignant melanoma of the skin was the fourteenth most common cancer in men and the tenth most common cancer in women, accounting for 2% of all cancers registered. Between 1993 and 1996, 69 men and 112 women were registered each year as having malignant melanoma, whilst 10 men and 18 women died annually from this disease. There were no statistically significant trends (P>0.05) in either the incidence or mortality EASRs (Figure 7.1), although figures from the 1980's show a marked rise in the number of cases here from 48 cases per year 1974-78 to over 180 cases per year now (2).

Table 7.1: Summary table for malignant melanoma

Summary 1993-1996	Males	Females
Average annual number of malignant melanoma cases registered	69	112
Average annual number of malignant melanoma deaths	10	18
% cases excluded from survival analysis	0.4	0.2
Relative survival rates (Age-standardised rates) (%)		
1-year	97 (97)	97 (97)
3-year	90 (89)	92 (90)
5-year	87 (81)	92 (90)

Figure 7.1: European age-standardised incidence and mortality rates for malignant melanoma of the skin by gender



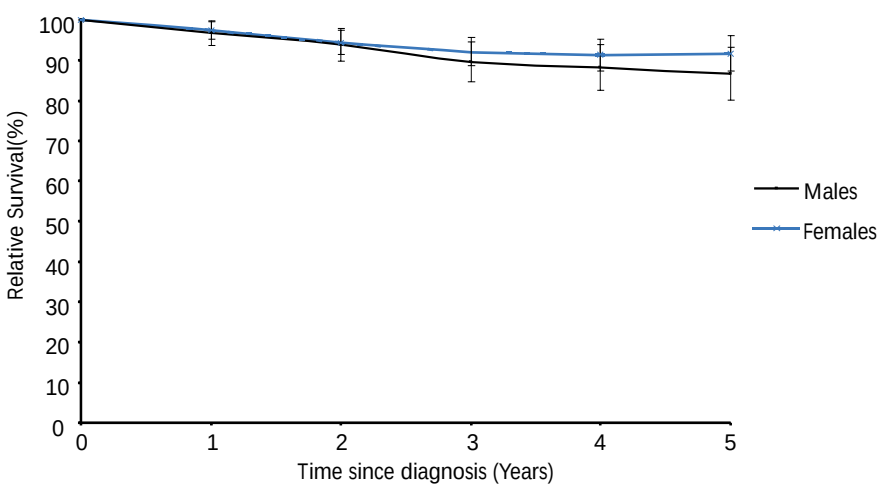
Survival

Overall survival from malignant melanoma of the skin is very good with 97% of patients alive one year after diagnosis and about 90% alive at five years.

Gender

There was no statistically significant difference (P>0.05) in malignant melanoma survival rates between men and women. For men diagnosed between 1993 and 1996 as having malignant melanoma, 97% survived one year, 90% three years and 87% five years. The corresponding relative survival rates for women were 97%, 92% and 92% respectively (Table 7.2).

Figure 7.2: Malignant melanoma survival by gender



Age

Overall, survival rates for malignant melanoma were extremely high, showing little variation with age at diagnosis (Figure 7.3). For men and women, there was no statistically significant difference (P>0.05) between the survival rates of patients diagnosed before age 65 and those older at diagnosis.

Figure 7.3: Malignant melanoma survival at one and five years by gender and age at diagnosis

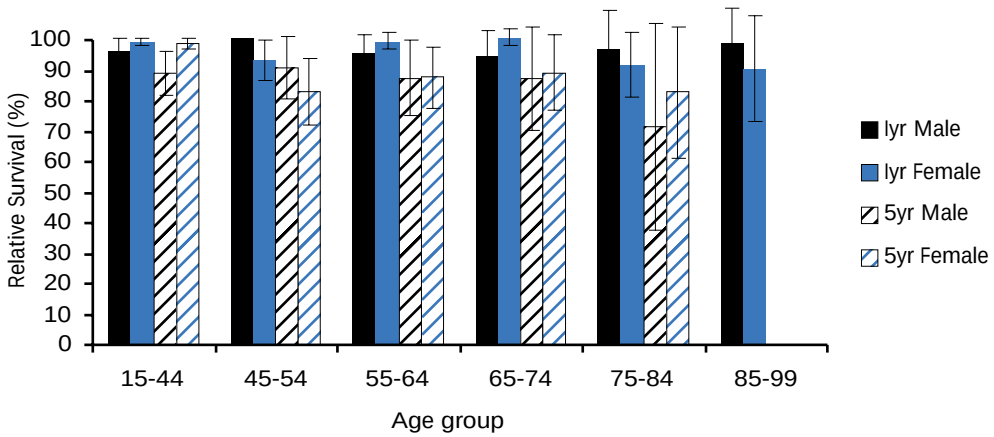


Table 7.2: Malignant melanoma survival: Comparison by gender and age

The number of cases registered, the relative survival rates (%) and 95% confidence intervals at one, three and five years, for patients diagnosed 1993-6.

Gender	Age (years)	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival (%)	95% CI (+/-)
Both	15-99	720	97	2	91	3	90	4
	15-64	473	98	1	93	3	92	3
	65-99	247	96	4	87	7	85	10
Males	15-99	275	97	3	90	5	87	7
	15-64	180	97	3	90	5	89	6
	65-99	95	96	7	88	12	81	17
Females	15-99	445	97	2	92	4	92	4
	15-64	293	98	2	95	3	93	3
	65-99	152	96	5	86	9	88	12

Staging

Tumours could be staged according to Clark's Level or by Breslow Depth (see Appendix 2). Staging information was available for almost 78% of the tumours and survival rates were calculated for both staging methods.

Clark's Level

For Clark's Level, tumours were classified as being either Clark I, II, III, IV and V (Clark I, in-situ, being the earliest disease). The effect of stage on the relative survival rates was found to be very highly statistically significant (P<0.001), with survival for Clark II, III and IV higher than Clark V. For example, five-year relative survival rates for Clark II, III, IV, V and unclassified were 99%, 98%, 92%, 68% and 79% respectively (Table 7.3, Figure 7.4). Note, in keeping with Registry practice, there were no Clark I, in-situ, cases included in our incidence figures, although records are kept of them.

Figure 7.4: Malignant melanoma survival by Clark's Level

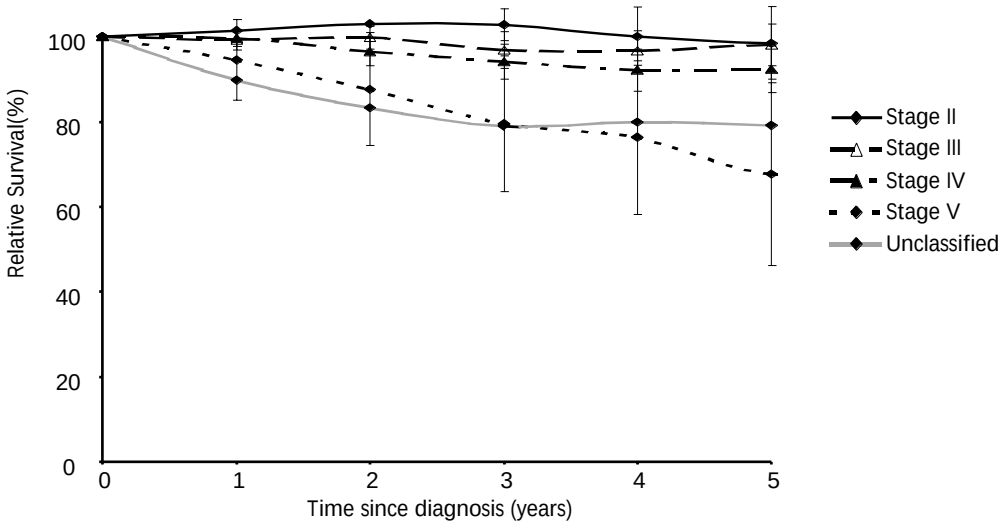


Table 7.3: Malignant melanoma survival: Comparison by Clark's Level.

The number of cases registered, the relative survival (%) and 95% confidence intervals at one, three and five years, for patients diagnosed 1993-6.

Stage	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival (%)	95% CI (+/-)
I	0						
II	56	100	0	100	4	99	9
III	147	99	2	97	4	98	5
IV	310	100	2	94	4	92	6
V	52	95	9	80	16	68	21
Unclassified	155	90	6	79	8	79	9

Breslow Depth

For Breslow depth classification, the tumours were categorised as being either less than or equal to 0.75mm, 0.76 to 1.50 mm, 1.51 to 3.00mm or 3.01+ mm. The effect of Breslow depth on the relative survival rates was also found to be very highly statistically significant (P<0.001), with, as expected, survival rates for smaller tumours better than larger tumours. For example, five-year relative survival rates for tumours with Breslow depths of ≤0.75mm, 0.76 to 1.50 mm, 1.51 to 3.00mm, 3.01+mm and unclassified were 99%, 99%, 90%, 71% and 79% respectively (Table 7.4, Figure 7.5).

Figure 7.5: Malignant melanoma survival by Breslow depth

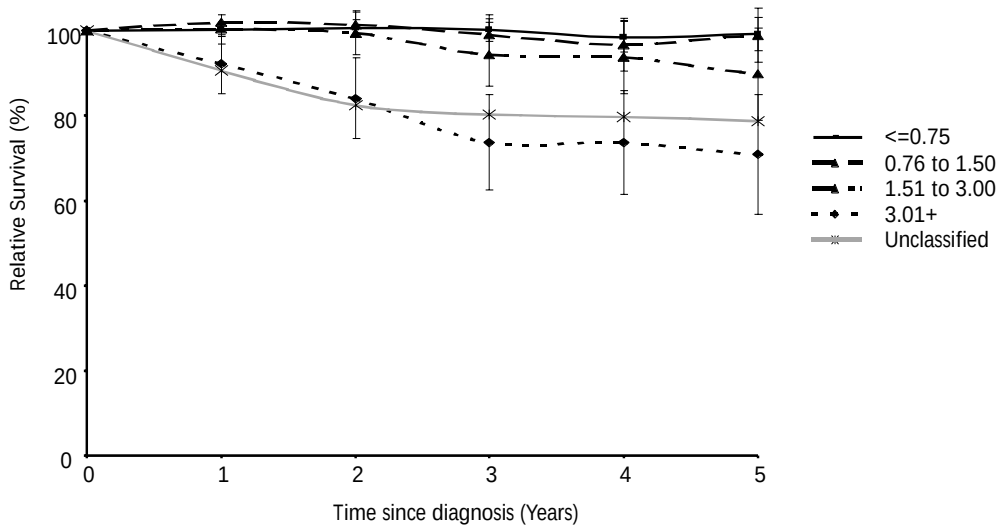


Table 7.4: Malignant melanoma survival: Comparison by Breslow depth.

The number of cases registered, the relative survival rates (%) and 95% confidence intervals at one, three and five years, for patients diagnosed 1993-6.

Breslow Depth (mm)	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival (%)	95% CI (+/-)
<=0.75	234	100	1	100	3	99	4
0.76 to 1.50	122	100	0	99	5	99	6
1.51 to 3.00	105	100	3	94	8	90	11
3.01+	102	92	7	74	11	71	14
Unclassified	157	91	5	80	8	79	9

Survival Comparisons

Our five-year survival rate for men (87%) was higher than our near neighbours. For women, the five-year survival (92%) was the same as Scotland but higher than that of England and Wales, and the Republic of Ireland (Table 7.5). Further, on comparing our five-year survival rates with other European registries (Table 7.6), Northern Ireland patients had a better chance of survival. Note that the figures for European registries relate to the 1980s and there has since been a general improvement in survival with time.

Table 7.5: Malignant melanoma survival in the 1990s: Local comparisons

The period of diagnosis, the number of cases and the five-year relative survival rates (%) for patients aged 15-99.

		Males		Females	
Registry	Diagnosis Period	No. of cases	5-year Survival (%)	No. of cases	5-year Survival (%)
Northern Ireland	93-96	275	87	445	92
Scotland	91-95	977	81	1569	92
England & Wales	91-93	4732	72	7052	86
Republic of Ireland	94-98	653	76	1127	81

Table 7.6: Malignant melanoma survival: Comparisons in Europe 1985-89

The number of cases registered between 1985 and 1989, five-year relative survival rates (%) and corresponding 95% confidence intervals for various European Registries

		Males		Females	
Registry (% Population coverage)		No. of Cases	5-year Survival (95%CI)	No. of Cases	5-year Survival (95%CI)
Denmark*	(100%)	1309	73 [70-76]	1813	84 [82-87]
Finland*	(100%)	1043	78 [75-81]	1089	85 [83-88]
Austria, Tyrol	(7.8%)	70	100 [100-100]	135	87 [79-93]
French registries	(3.9%)	156	70 [61-79]	268	82 [76-88]
Germany, Saarland	(1.7%)	194	72 [64-79]	252	83 [76-89]
Italian registries	(9.7%)	574	57 [52-61]	713	79 [75-82]
Dutch registries	(20.5%)	110	77 [67-86]	176	88 [81-93]
Spanish registries	(9.6%)	205	67 [59-75]	311	85 [79-90]
Sweden, South	(17.5%)	560	86 [81-90]	658	90 [86-93]

* These registries are national population-based registries.

Comment

The relative survival following diagnosis of malignant melanoma of the skin is now very good, with 97% of patients surviving one year and almost 90% surviving five years. The number of cases of malignant melanoma has increased rapidly in Northern Ireland over the past 25 years from an average of 48 cases per year (1974-1978) to 180 cases per year (2). Worldwide, melanoma incidence is rising by around 4% a year. Malignant melanoma is largely preventable by avoiding excessive sun exposure, while early detection and adequate treatment can dramatically improve survival. A general pattern of increasing cases in men and falling rates in women in Northern Ireland has been known for some time (due to the pre-existing Melanoma Register) and is similar to the trends in Scottish data (23). Specifically the increase is greatest among those under 50 but is especially marked in young females under 30 years of age. A pattern of falling numbers of invasive and rising numbers of in situ cases detected by the NICR (2) indicates earlier detection of disease. The most important factor with regard to favourable prognosis is the clinical stage at which the patient first presents.

It is interesting that our survival figures are similar to Scotland which has had an intensive heath promotion campaign promoting prevention and early detection of this cancer (24).

A DHSSPS strategy for the Prevention, Diagnosis and Treatment of Malignant Melanoma and other skin cancers, launched 1997 (25), aims to address this rising trend. The strategy builds on Health Promotion programmes which have been ongoing in the province since 1990. It also aims to encourage earlier detection of melanoma and treatment according to agreed protocols by dermatologists and plastic surgeons.

For Health Gain

- The public must be encouraged to take 'Care in the Sun' at home and abroad by:
  - avoiding the sun 11 am - 3 pm and seeking shade
  - covering up with hat, T-shirt, sunglasses
  - using minimum factor 15 sunscreen.
- The public must be encouraged to become aware of changes in the skin which could indicate the presence of skin cancer and especially malignant melanoma.

These include:

Skin Changes Which May Indicate Malignant Melanoma in a Skin Lesion

Major Signs

- Change in Size
- Change in Shape
- Change in Colour

Minor Signs

- Inflammation
- Crusting or Bleeding
- Sensory change e.g. itching, pain
- Diameter over 7 mm (blunt end of pencil)

Guide for referral

A patient with a pigmented lesion with any one of the major signs should be considered for urgent referral. The presence of any of the minor signs should be a further stimulus for urgent referral.

- Professionals must ensure a fast track approach to the diagnosis of suspicious lesions and treatment according to agreed guidelines.
- Participation in clinical trials, which can advise on the best treatments, should be enhanced.
- The organisation of services should be such as to ensure that those with the disease have as good an outcome as possible.
- The full range of palliative care services should be available for those with established disease.

Key Facts
- 828 women registered each year
- 321 women die each year, death rates are falling
- 92% of women survive one year, 82% three years and 78% five years
- Better survival in younger women than older women
- Better survival with earlier presentation of disease

8. Cancer of the Breast

Note: Breast cancer refers to malignant breast tumours in the female population i.e. ICD-9 174

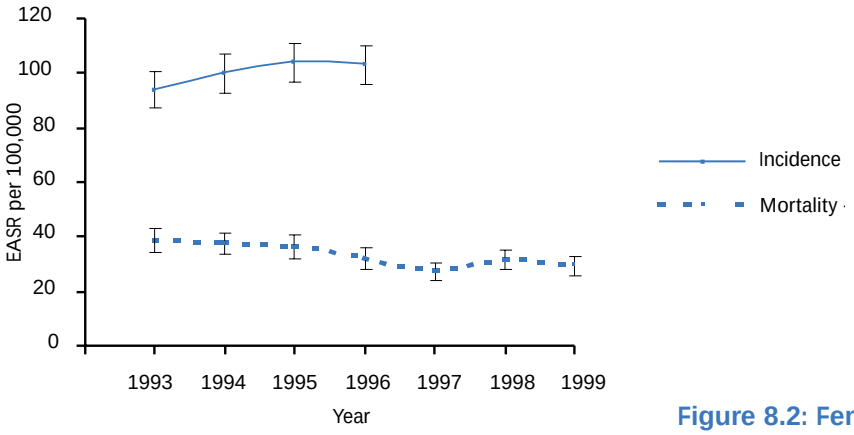
Incidence and Mortality

In 1996, breast cancer was the most common cancer in women after non-melanoma skin cancer and accounted for approximately 19% of all cancers registered. Between 1993 and 1996, an average of 828 cases were registered each year and approximately 321 women died of the disease. There was no statistically significant trend (P>0.05) in the incidence EASR (Figure 8.1) although numbers are increasing. However, there was a statistically significant (P<0.01) downward trend in the EASR mortality rate, with the standardised mortality rate decreasing by over 2 cases per 100,000 per year.

Table 8.1: Summary table for cancer of the breast

Summary 1993-1996		Females
Average annual number of breast cancers registered		828
Average annual number of breast cancer deaths		321
% cases excluded from survival analysis		2.0
Relative survival rates (Age-standardised rates) (%)		
	1-year	92 (92)
	3-year	82 (81)
	5-year	78 (77)

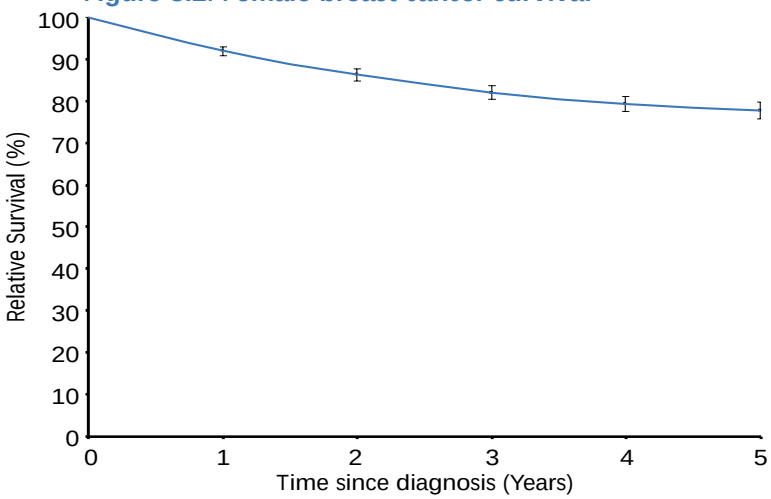
Figure 8.1: European Age-Standardised Incidence and Mortality Rates for female breast cancer



Survival

Overall survival was good with over 90% surviving one year and almost 80% surviving five years (see Figure 8.2).

Figure 8.2: Female breast cancer survival



Age

Most cancer sites exhibit higher survival rates for younger patients, however women diagnosed as having breast cancer in the youngest age group (15 to 44 years) had poorer survival than women in the middle age groups (45 to 64 years), but better survival than older women (65 years and older) (Figure 8.3). This is similar to the pattern found in England and Wales (26). Considering all ages, the percentage of women alive after one year, three years and five years of follow-up were 92%, 82% and 78% respectively (Table 8.2).

The difference in the relative survival rates between the under and over 65's, was found to be very highly statistically significant (P<0.001). One-year survival for those women diagnosed as having breast cancer before their 65th birthday was 10% better than those aged 65 years or older when diagnosed.

Figure 8.3: Female breast cancer survival at one and five years by age at diagnosis

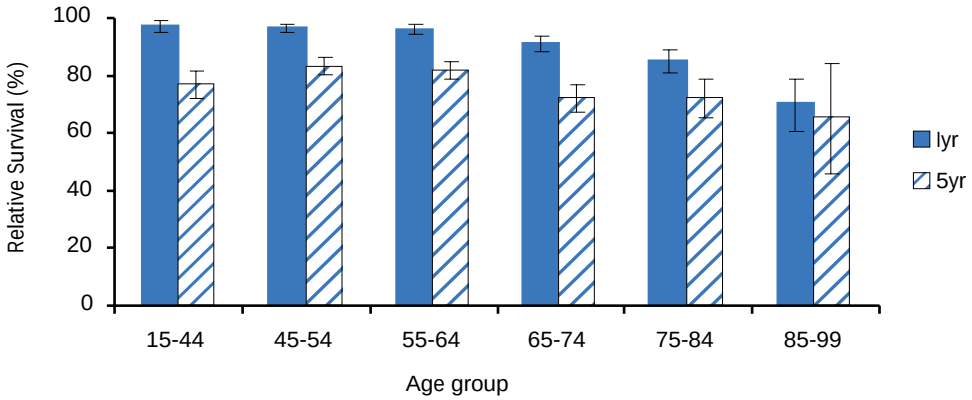


Table 8.2: Female breast cancer survival: Comparison by age

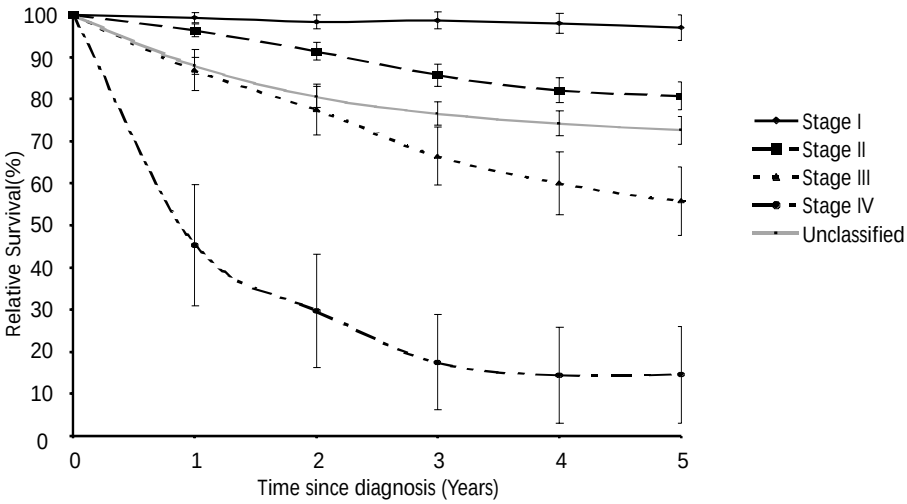
The number of cases registered, the relative survival rates (%) and 95% confidence limits at one, three and five years, for women diagnosed 1993-6.

Age (Years)	No. of Cases	1-year Survival (%)	95%CI (+/-)	3-year Survival (%)	95%CI (+/-)	5-year Survival (%)	95%CI (+/-)
15-99	3244	92	1	82	2	78	2
15-64	1979	96	1	86	2	81	2
65-99	1265	86	2	75	3	71	4

Staging

Staging information was available for only 59% of the tumours, which in turn were classified as being either stage I, II, III or IV (Stage I being earlier disease) (Appendix 2). Of the remaining 41% that were stage unclassified, many were patients who had small tumours but no nodal assessment or had less than six nodes assessed and so could not be staged according to UICC rules (27). However, recording of the nodal status assessment appears to have improved from 1993 to 1996.

Figure 8.4: Female breast cancer survival by stage



The effect of stage on the relative survival rates was found to be very highly statistically significant (P<0.001), with better survival associated with earlier stage. For example, the five-year relative survival rates for Stage I, II, III and Unclassified were 97%, 81%, 56%, and 73% respectively (Figure 8.3, Table 8.3). Note: unclassified includes patients with small tumours but without full nodal assessment which explains the good survival in this group.

Table 8.3: Female breast cancer survival: Comparison by stage.

The number of cases registered, the relative survival rates (%) and 95% confidence intervals at one, three and five years, for women diagnosed 1993-6.

Stage	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival (%)	95% CI (+/-)
I	616	99	1	99	2	97	3
II	994	96	1	86	3	81	3
III	250	87	5	66	7	56	8
IV	50	45	14	17	11	—	—
Unclassified	1334	88	2	77	3	73	3

Survival Comparisons

Our five-year female breast survival of 78% was marginally better than our near neighbours (Table 8.4). Many of the European Registries (Table 8.5) had similar five-year survival rates for female breast cancer to here, but it should be noted that these rates were based on a much earlier diagnosis period and are likely to have improved in recent years leaving Northern Ireland lagging behind.

Table 8.4: Female breast cancer survival in the 1990s: Local comparisons

The period of diagnosis, the number of cases registered and the five-year relative survival rates (%) for women aged 15-99.

		Females	
Registry	Diagnosis Period	No. of cases	5-year Survival (%)
Northern Ireland	93-96	3244	78
Scotland	91-95	14449	75
England & Wales	91-93	83912	74
Republic of Ireland	94-98	7816	74

Table 8.5: Female breast cancer survival: Comparisons in Europe 1985-89

The number of cases diagnosed between 1985 and 1989, five-year relative survival rates (%) and the corresponding 95% confidence intervals for various European Registries

		Females	
Registry (% Population coverage)		No. of Cases	5-year Survival (95%CI)
Denmark*	(100%)	13912	71 [70-72]
Finland*	(100%)	10558	79 [78-80]
Austria, Tyrol	(7.8%)	520	63 [58-68]
French registries	(3.9%)	6059	81 [79-82]
Germany, Saarland	(1.7%)	2578	72 [70-74]
Italian registries	(9.7%)	11376	77 [76-78]
Dutch registries	(20.5%)	2119	75 [73-77]
Spanish registries	(9.6%)	5173	71 [69-72]
Sweden, South	(17.5%)	3925	81 [79-82]

* These registries are national population-based registries.

Comment

The survival following diagnosis of breast cancer depends on the stage of the disease, but is usually good. Over 90% of women survive one year and almost 80% survive five years. Female breast cancer represents almost one in five of female cancers and until 1997, was the most common cause of cancer death in females in Northern Ireland, when it was overtaken by lung cancer.

The cause of breast cancer is not completely known. Although less than 10% of all breast cancers are hereditary in nature, women with a strong family history have an increased risk of early and bilateral disease. Migration studies show that descendants of those who have migrated tend to attain the incidence rates of women living in the host country within a couple of generations. Hormonal balance in women is thought to be important as well, and women who have had many pregnancies or who have their pregnancy early in life are at reduced risk. Women who have had their ovaries removed before the age of 40 are also at reduced risk.

Studies have shown that breast cancer is more common in females who consume a diet which is high in saturated fat. Also certain religious sects who have a low fat intake show particularly low levels of breast cancer. Adults, however, who enter the sect in adult life do not have these low rates. This indicates that the protective factors appear to operate before adult life. While this confirms the importance of environmental factors, it also suggests that perhaps events occurring in childhood may be more important than those occurring in later life.

As a result of findings in other countries, the NHS Breast Screening Programme was implemented throughout the UK commencing 1987 and was fully operational in Northern Ireland by 1993. Women aged between 50 and 64 years are routinely invited every three years for a breast x-ray (mammogram). It is hoped that detecting smaller cancers (less than 1.5 cm) at an earlier stage and before metastatic spread has occurred, will significantly reduce the death rate. Older women over age 65 may also attend, although they are not specifically invited for mammogram. The effect of the screening programme is detectable in figures which have shown an increase in crude number of breast cancers 1993-96 of 14%. The falling death rates from breast cancer are not unique to Northern Ireland and are thought to reflect better treatment (28).

For Health Gain

- Women should ensure that they eat a healthy diet and do not exceed the recommended levels of fat intake.
- Women aged 50-64 should attend for breast screening when invited.
- Those with a strong family history should seek professional advice on the value of mammography at a younger age.
- Women should be advised to seek early diagnosis for symptoms of breast cancer (a lump, discharge from the nipple, puckering of the skin, thickening of breast tissue).
- Participation in clinical trials, which can advise on the best treatments, should be enhanced.
- The organisation of services should be such as to ensure that those with the disease have as good an outcome as possible.
- The full range of palliative care services should be available for those with established disease.

Recommendation

- All women with breast cancer should have their disease stage, including lymph node status, assessed at diagnosis.

Key Facts
- 83 cases per year
- 34 deaths per year
- 83% survive one year, 70% three years and 64% five years
- Better survival rates in younger women than older women
- Better survival rates with early presentation of disease

9. Cancer of the Cervix uteri

ICD-9 180

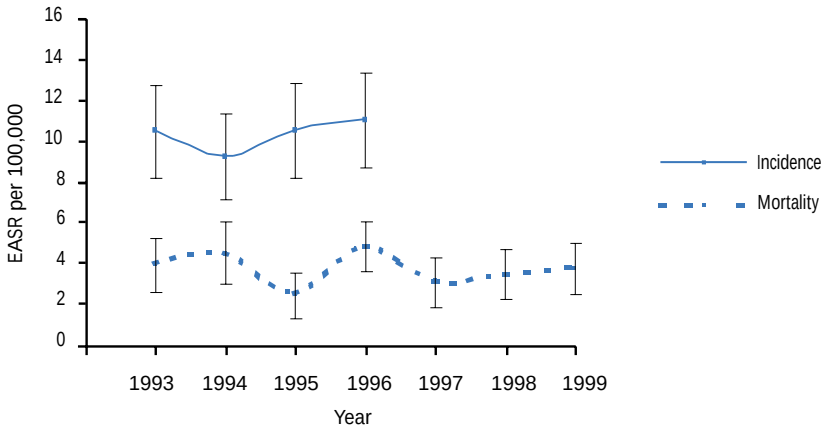
Incidence and Mortality

In 1996, cervical cancer was the twelfth most common cancer in women, accounting for over 2% of all cancers registered in the female population. Between 1993 and 1996, approximately 83 women were registered each year as having cervical cancer, whilst an average of 34 died each year from the disease. There were no statistically significant trends (P>0.05) in the EASR incidence or mortality rates (Figure 9.1).

Table 9.1: Summary table for cancer of the cervix

Summary 1993-1996	Females
Average annual number of cervical cancers registered	83
Average annual number of cervical cancer deaths	34
% cases excluded from survival analysis	2.1
Relative survival rates (Age-standardised rates) (%)	
1-year	83 (80)
3-year	70 (65)
5-year	64 (59)

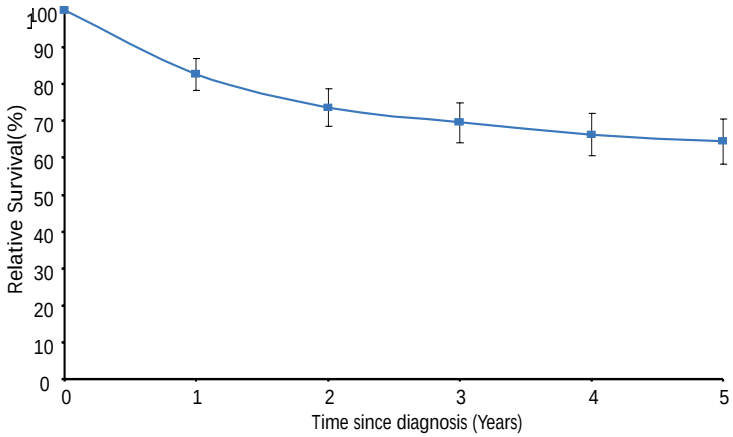
Figure 9.1: European age-standardised incidence and mortality rates of cervical cancer



Survival

Overall survival was good with over 80% surviving one year and almost two thirds surviving five years (see Figure 9.2).

Figure 9.2: Cervical cancer survival



Age

Half of cervical cancer cases are diagnosed in women under 49 years (2). However, survival rates decreased with increasing age at diagnosis (Figure 9.3). For patients diagnosed between 1993 and 1996, 83% survived one year, 70% survived three years and 64% survived five years. Women diagnosed before their 55th birthday as having cervical cancer, had significantly better survival (P<0.001) than those aged 55 years or over. One-year relative survival was 22% higher in the under 55 age group than in the 55 and over (Table 9.2). This may reflect the increased proportion of microinvasive to invasive tumours detected in younger women.

Figure 9.3: Cervical cancer survival at one and five years by age at diagnosis

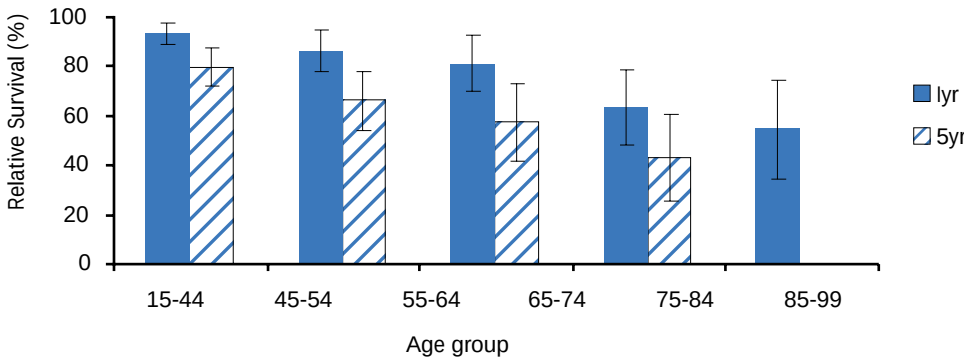


Table 9.2: Cervical cancer survival: Comparison by age

The number of cases registered, the relative survival rates (%) and 95% confidence intervals at one, three and five years, for women diagnosed 1993-6.

Age (Years)	No. of Cases	1-year Survival (%)	95%CI (+/-)	3-year Survival (%)	95%CI (+/-)	5-year Survival (%)	95%CI (+/-)
15-99	326	83	4	70	5	64	6
15-54	203	91	4	80	6	75	6
55-99	123	69	9	50	10	45	11

Staging

Staging information was available for only 58% of the tumours, which in turn were classified as being either stage I, II, III, IV or V (Appendix 2). Stage I is earlier disease. The remaining 42% were stage unclassified. As there were only 8 cases of Stage V, survival rates were not calculated. The effect of stage on the relative survival rates was found to be highly statistically significant (P<0.01), with better survival associated with earlier stage. For example, the one-year relative survival rates for Stage I, II, III, IV and Unclassified were 100%, 95%, 79%, 61% and 78% respectively (Figure 9.4, Table 9.3). Stage I tumours include micro-invasive tumours (18-20%) which are very early tumours and would be expected to have a very good prognosis.

Figure 9.4: Cervical cancer survival by stage

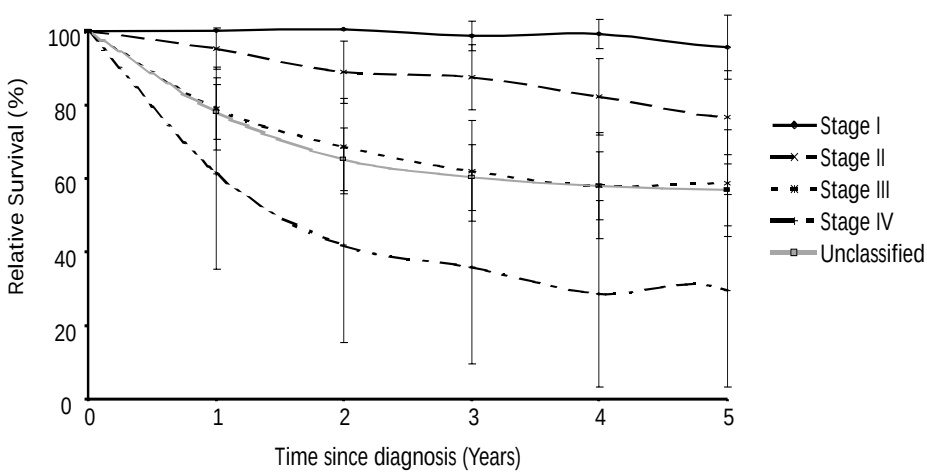


Table 9.4: Cervical cancer survival: Comparison by stage.

The number of cases registered, the relative survival rates (%) and 95% confidence intervals at one, three and five years, for women diagnosed 1993-6.

Stage	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival (%)	95% CI (+/-)
I	50	100	0	99	4	96	9
II	60	95	6	88	9	77	13
III	55	79	11	62	14	59	14
IV	15	61	26	-	-	-	-
V	8	-	-	-	-	-	-
Unclassified	138	78	7	60	9	57	10

Survival Comparisons

Our five-year survival (64%) for cervical cancer was very similar to that of our near neighbours (Table 9.4). Many of the European Registries (Table 9.5) have higher five-year survival rates for cervical cancer than here, even though these rates were based on a much earlier diagnosis period. This might reflect the inclusion of premalignant disease.

Table 9.4: Cervical cancer survival in the 1990s: Local comparisons

The period of diagnosis, the number of cases registered and the five-year relative survival rates (%) for women aged 15-99.

		Females	
Registry	Diagnosis Period	No. of cases	5-year Survival (%)
Northern Ireland	93-96	326	64
Scotland	91-95	1859	65
England & Wales	91-93	9446	64
Republic of Ireland	94-98	867	64

Table 9.5: Cervical cancer survival: Comparisons in Europe 1985-89

The number of cases diagnosed between 1985 and 1989, five-year relative survival rates (%) and corresponding 95% confidence intervals for various European Registries

		Females	
Registry (% Population coverage)		No. of Cases	5-year Survival (95%CI)
Denmark*	(100%)	2791	65 [63-67]
Finland*	(100%)	678	55 [51-60]
Austria, Tyrol	(7.8%)	164	72 [64-79]
French registries	(3.9%)	752	64 [60-68]
Germany, Saarland	(1.7%)	429	63 [58-68]
Italian registries	(9.7%)	1318	62 [59-64]
Dutch registries	(20.5%)	166	69 [61-77]
Spanish registries	(9.6%)	656	62 [58-66]
Sweden, South	(17.5%)	433	71 [66-75]

* These registries are national population-based registries.

Comment

Survival of women diagnosed as having cervical cancer is relatively high, with around 83% surviving one year and over 60% surviving five years. The major risk factor for development of pre-invasive or invasive carcinoma of the cervix is human papilloma virus infection. This outweighs other known risk factors such as a high parity (number of children), number of sexual partners, socio-economic status (cervical cancer is more common in lower socio-economic groups) and smoking history. The vast majority (over 90%) of cases of cervical cancer can be detected early by the use of the PAP smear which allows an examination of cells from the cervix. In the United Kingdom there is a population based screening programme where women aged 20 to 64 are invited to have a cervical smear every five years. This was introduced in Northern Ireland in 1988 and replaced the community cervical screening programme which had begun in 1965.

Information from a regional audit project indicates that half of these cancers occur in the 30% of women who have never had a smear.

For Health Gain

- Measures to reduce smoking including special programmes targeted for women should be promoted.
- All eligible women should be encouraged to attend for a cervical smear.
- The organisation of services should be such as to ensure that those with the disease have as good an outcome as possible.
- The full range of palliative care services should be available for those with established disease.
- Participation in clinical trials which can advise on the best treatments should be enhanced.

Recommendation

- Efforts should be made by the Registry to improve their acquisition of staging information.

Key Facts
- 112 cases per year
- 92 deaths per year
- 57% survive one year, 32% three years and 27% five years
- Better survival rate in younger women than older women
- Better survival rate with early stage at presentation

10. Cancer of the Ovary

ICD-9 183 denotes Ovary and other Uterine adnexa

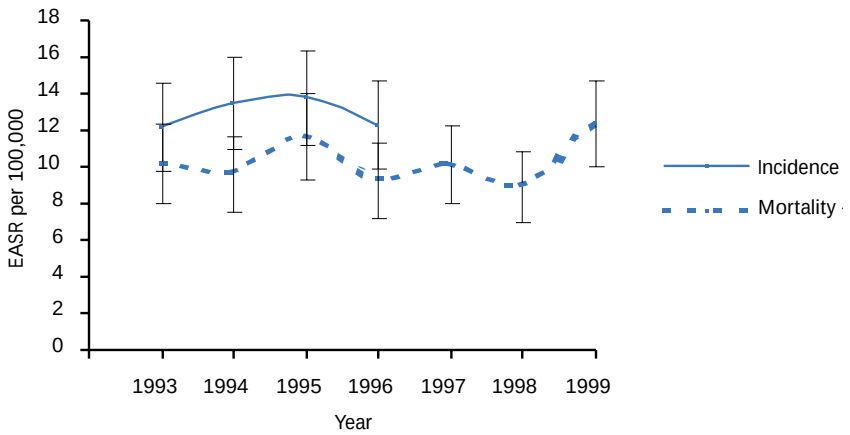
Incidence and Mortality

In 1996, ovarian cancer was the seventh most common cancer in women, accounting for approximately 3% of all cancers registered. Between 1993 and 1996, approximately 112 patients were registered annually with ovarian cancer, whilst an average of 92 died each year from the disease. There were no statistically significant trends (P>0.05) in the EASR incidence or mortality rates (Figure 10.1).

Table 10.1: Summary table for cancer of the ovary

Summary 1993-1996	Females
Average annual number of ovarian cancers registered	112
Average annual number of ovarian cancer deaths	92
% cases excluded from survival analysis	2.9
Relative survival rates (Age-standardised rates) (%)	
1-year	57 (61)
3-year	32 (37)
5-year	27 (32)

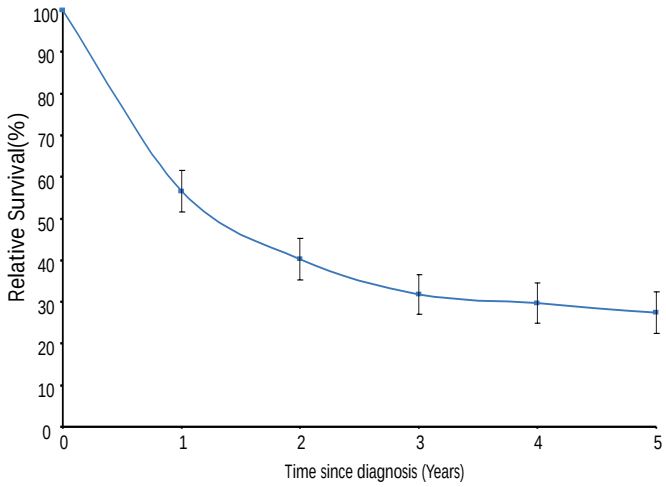
Figure 10.1: European age-standardised incidence and mortality rates of cancer of the ovary



Survival

Overall survival is moderate with almost 60% of patients alive at one year and 27% alive at five years (see Figure 10.2).

Figure 10.2: Ovarian cancer survival



Age

Survival from ovarian cancer decreased as age at diagnosis increased (Figure 10.3). For women diagnosed between 1993 and 1996 as having ovarian cancer, 57% survived one year, 32% three years and 27% five years. Patients diagnosed before their 65th birthday as having ovarian cancer had significantly better survival (P<0.001) than those aged 65 years or over, with one-year relative survival 27% higher in the under 65 age group than in the 65 and over (Table 10.2).

Figure 10.3: Ovarian cancer survival at one and five years by age at diagnosis

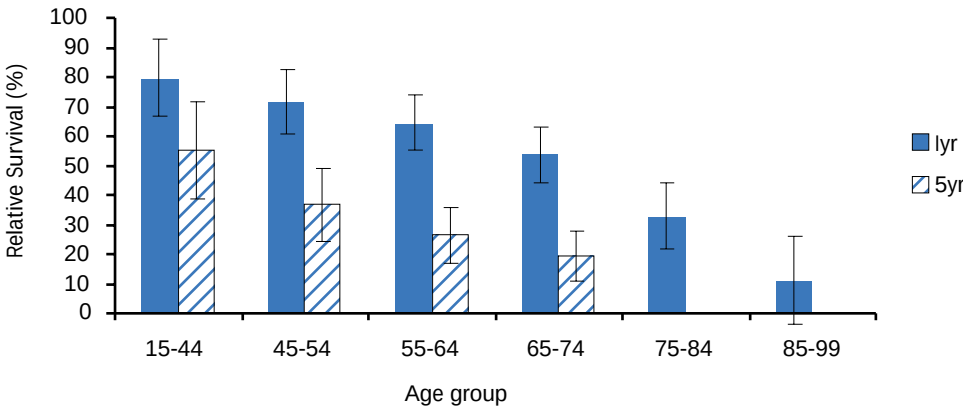


Table 10.2: Ovarian cancer survival: Comparison by age

The number of cases registered, the relative survival rates(%) and 95% confidence intervals at one, three and five years, for women diagnosed 1993-6.

Age (Years)	No. of Cases	1-year Survival (%)	95%CI (+/-)	3-year Survival (%)	95%CI (+/-)	5-year Survival (%)	95%CI (+/-)
15-99	427	57	5	32	5	27	5
15-64	214	70	6	44	7	35	7
65-99	213	43	7	18	6	18	6

Staging

Staging information was only available for the years 1994-1996 (44% of the tumours) and thus five year survival in this section was based only on data from 1994. Tumours were classified as being either stage I, II, III or IV (Appendix 2). The effect of stage on the relative survival rates was found to be very highly statistically significant (P<0.001), with better survival associated with earlier stage. For example, the one-year relative survival rates for Stage I, II, III, IV and Unclassified were 79%, 86%, 65%, 39% and 46% respectively (Figure 10.4, Table 10.3).

Figure 10.4: Ovarian cancer survival by stage

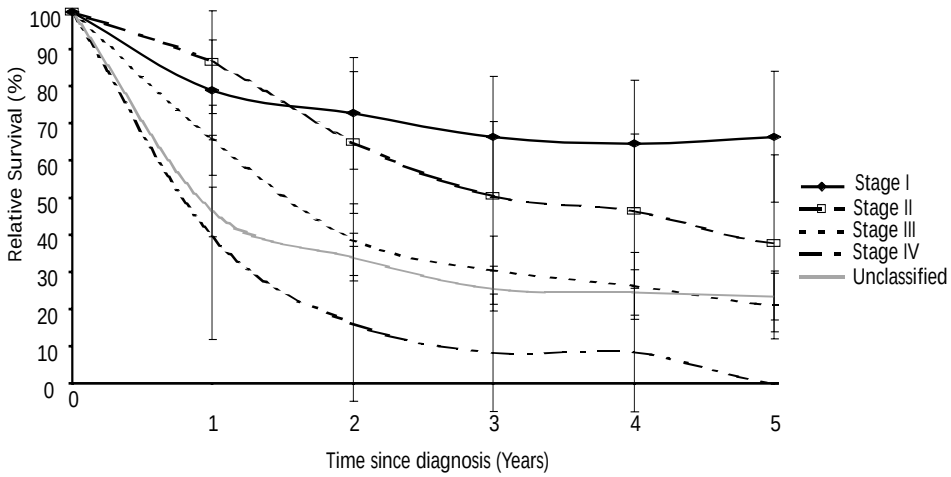


Table 10.3: Ovarian cancer survival: Comparison by stage.

The number of cases registered, the relative survival rates(%) and 95% confidence intervals at one, three and five years, for women diagnosed 1993-6.

Stage	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival (%)	95% CI (+/-)
I	40	79	13	66	16	66	18
II	27	86	14	50	20	-	-
III	107	65	9	30	9	21	9
IV	13	39	28	-	-	-	-
Unclassified	240	46	7	26	6	23	6

Survival Comparisons

Our five-year ovarian survival rate (27%) was similar to the rest of the UK (Table 10.4), but lower than the Republic of Ireland and other European Registries (Table 10.5). Survival rates from European registries are based on data from an earlier time period and are likely to have improved further with time. Some registries may have included borderline malignancies, which would inflate survival rates. Patients with borderline malignancies were not included in our data.

Table 10.4: Ovarian cancer survival in the 1990s: Local comparisons

The period of diagnosis, the number of cases registered and the five-year relative survival rates (%) for women aged 15-99.

		Females	
Registry	Diagnosis Period	No. of cases	5-year Survival (%)
Northern Ireland	93-96	427	27
Scotland	91-95	2508	29
England & Wales	91-93	13867	29
Republic of Ireland	94-98	1505	37

Table 10.5: Ovarian cancer survival: Comparisons in Europe 1985-89

The number of cases diagnosed between 1985 and 1989, five-year relative survival rates (%) and the corresponding 95% confidence intervals for the various European Registries

		Females	
Registry (% Population coverage)		No. of Cases	5-year Survival (95%CI)
Denmark*	(100%)	2926	32 [30-34]
Finland*	(100%)	1861	38 [35-40]
Austria, Tyrol	(7.8%)	119	41 [32-51]
French registries	(3.9%)	707	38 [34-42]
Germany, Saarland	(1.7%)	408	33 [28-39]
Italian registries	(9.7%)	1685	34 [31-36]
Dutch registries	(20.5%)	260	35 [29-41]
Spanish registries	(9.6%)	717	44 [40-48]
Sweden, South	(17.5%)	837	45 [42-49]

* These registries are national population-based registries.

Comment

Ovarian cancer occurs most frequently in white affluent populations, especially in women from North America and Northwest Europe. There is a reduced risk among Japanese women. In most European countries the incidence and mortality is either increasing or stable, though the mortality rates for both Scotland, and England and Wales showed a modest decline of 0.2% and 1.3% respectively.

The cause of ovarian cancer is poorly understood. A slight familial risk has been shown, as genetic predisposition occurs in some families linked with the BRCA1 and BRCA2 genes which are also associated with an increased risk of breast cancer. However, environmental factors are thought to be more important. Two protective factors have been consistently demonstrated, the number of pregnancies and use of the combined oral contraceptive. Pregnancy, especially two or more children, has been shown to be protective against ovarian cancer. Oral contraceptive use, for as long as five years, may reduce the risk of ovarian cancer by approximately half.

Because ovarian cancer is often asymptomatic in its early stages, most patients have widespread disease at the time of diagnosis; consequently prognosis is generally poor.

Research is ongoing to identify markers for this tumour and to develop a screening test.

For Health Gain

- Ensure symptoms are investigated as early as possible.
- Participation in clinical trials, which can advise on the best treatments, should be enhanced.
- The organisation of services should be such as to ensure that those with the disease have as good an outcome as possible.
- The full range of palliative care services should be available for those with established disease.

Key Facts
- 467 cases per year
- 203 deaths per year
- 82% survive one year, 67% three years and 58% five years
- Better survival in younger men than older men.

11. Cancer of the Prostate

ICD-9 185

Incidence and Mortality

In 1996, prostate cancer was the second most common cancer in men, excluding non-melanoma skin cancer, and accounted for approximately 11% of all cancers registered. Between 1993 and 1996, an average of 467 males were registered annually as having prostate cancer, whilst approximately 203 men died from the disease each year. There were no statistically significant trends (P>0.05) in either the incidence or mortality EASRs (Figure 11.1).

Table 11.1: Summary table for cancer of the prostate

Summary 1993-1996		Males
Average annual number of prostate cancers registered		467
Average annual number of prostate cancer deaths		203
% cases excluded from survival analysis		4.1
Relative survival rates (Age-standardised rates) (%)		
	1-year	82 (78)
	3-year	67 (63)
	5-year	58 (53)

Figure 11.1: European age-standardised incidence and mortality rates of cancer of the prostate

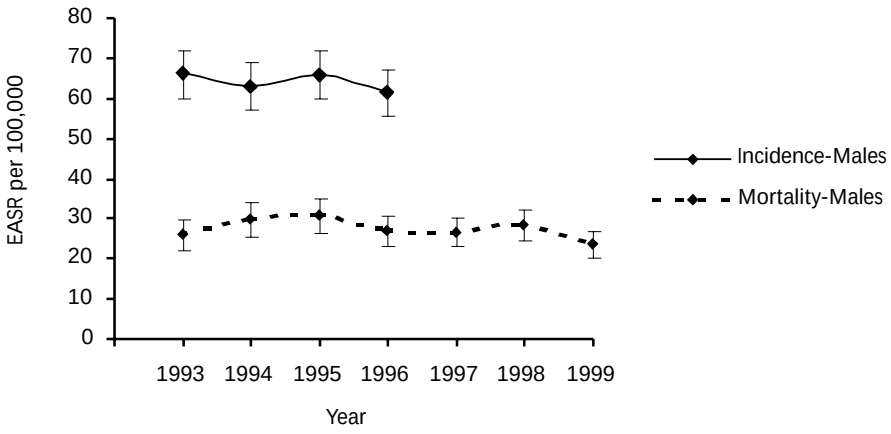
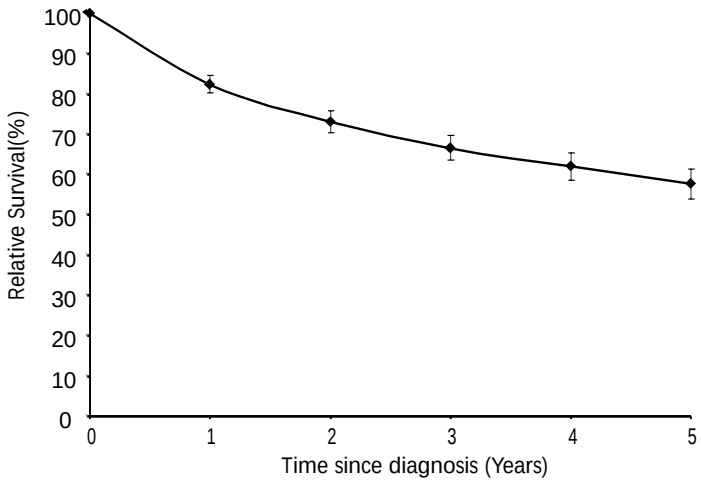


Figure 11.2: Prostate cancer survival



Survival

Overall survival from prostate cancer is good with 82% of cases alive at one year and 58% alive at five years (see Figure 11.2).

Age

Cancer of the prostate is a disease more commonly diagnosed in older men, half of cases occur in those over 75 years. Unlike survival rates for most other cancers, poorest survival was found in the younger men (15-54 years) (Figure 11.3). This is similar to the pattern already seen in England and Wales (26). For men diagnosed between 1993 and 1996 as having cancer of the prostate, 82% survived one year, 67% three years and 58% five years. There was a very highly statistically significant difference (P<0.001) between survival rates of men diagnosed before their 75th birthday and those aged 75 years or over, with one year survival 12% higher for men less than 75 years old when diagnosed, than it was for men 75 years or older. (Table 11.2).

Figure 11.3: Prostate cancer survival at one and five years by age at diagnosis

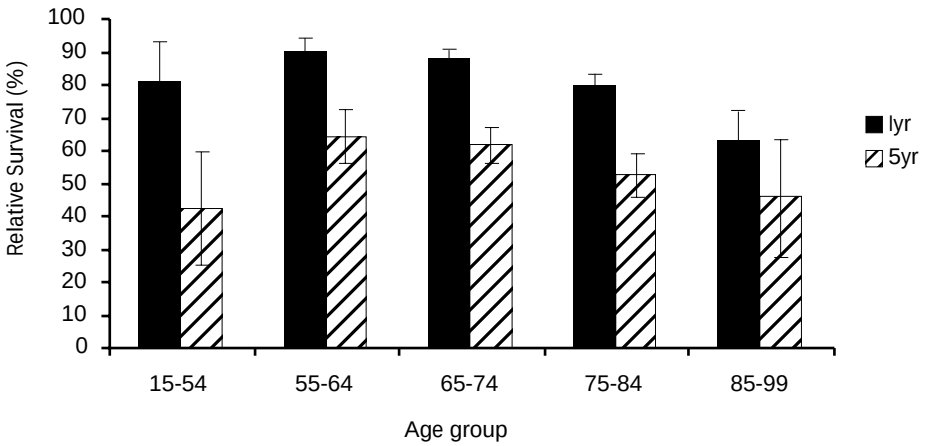


Table 11.2: Prostate cancer survival: Comparison by age

The number of cases registered, the relative survival rates(%) and 95% confidence intervals at one, three and five years, for men diagnosed 1993-6.

Age (Years)	No. of Cases	1-year Survival (%)	95%CI (+/-)	3-year Survival (%)	95%CI (+/-)	5-year Survival (%)	95%CI (+/-)
15-99	1790	82	2	67	3	58	4
15-54	42	81	12	56	16	43	17
15-74	891	88	2	72	4	61	4
75-99	899	76	4	60	5	52	6

Survival Comparisons

The percentage of males surviving at least five years of follow-up with prostate cancer here (58%) was similar to Scotland (56%), but almost 10% higher than England and Wales (Table 11.3). The Republic of Ireland and many of the other European registries (Table 11.4) had better five year survival rates. The impact of changing methods of diagnosis and whether biochemical tests such as Prostate Specific Antigen (PSA) are considered by a registry as sufficient to make a diagnosis, should encourage caution in interpretation of these results. The NICR requires information additional to PSA result, such as histological confirmation or clinical opinion.

Table 11.3: Prostate cancer survival in the 1990s: Local comparisons

The period of diagnosis, the number of cases registered and the five year relative survival rates (%) for men aged 15-99.

		Males	
Registry	Diagnosis Period	No. of cases	5-year Survival (%)
Northern Ireland	93-96	1790	58
Scotland	91-95	7151	56
England & Wales	91-93	41877	49
Republic of Ireland	94-98	5566	65

Table 11.4: Prostate cancer survival: Comparisons in Europe 1985-89

The number of cases diagnosed between 1985 and 1989, five-year relative survival rates(%) and the corresponding 95% confidence intervals for the various European Registries

		Males	
Registry (% Population coverage)		No. of Cases	5-year Survival (95%CI)
Denmark*	(100%)	6939	42 [40-43]
Finland*	(100%)	5566	62 [60-64]
Austria, Tyrol	(7.8%)	364	58 [51-64]
French registries	(3.9%)	2153	62 [58-65]
Germany, Saarland	(1.7%)	1035	69 [64-73]
Italian registries	(9.7%)	3992	49 [47-51]
Dutch registries	(20.5%)	819	58 [53-63]
Spanish registries	(9.6%)	1806	54 [51-58]
Sweden, South	(17.5%)	3580	65 [63-68]

* These registries are national population-based registries.

Comment

Survival from prostate cancer is good, over 80% survive one year and almost 60% survive five years. The cause of prostatic cancer is not well understood. There is evidence that endocrine/hormonal factors play a part. There are also marked geographical variations pointing to environmental factors. The disease is much less common in Asian populations. However, as studies have shown Japanese men who have migrated to Hawaii developed, within the space of one or two generations, the much higher disease rates of the adopted country (29).

Prostatic cancer is a common tumour which responds well to treatment even when widespread and may be cured when localised. The issue of screening men without symptoms for prostatic cancer is still controversial. Rectal examination is not particularly sensitive while ultrasound and/or biochemical markers such as PSA are associated with high false positive rates and may identify some tumours which will not threaten the patient's health. There are also considerable costs both to the Health Service and to the patient associated with the extra work of investigation and treatment of such tumours which militates against mass population screening. A multi-centre trial in the USA is presently underway to test the value of early detection on reducing mortality. The use of PSA testing has resulted in increased detection of disease which is slowly growing and unlikely to cause serious health problems. The NICR is currently studying the use of PSA testing in the detection of prostate cancer here.

For Health Gain

- Men's health, including raised awareness of the importance of early investigation of symptoms, should be a focus for a general health education programme.
- Participation in clinical trials, which can advise on the best treatments, should be enhanced.
- The organisation of services should be such as to ensure that those with the disease have as good an outcome as possible.
- The full range of palliative care services should be available for those with established disease.

Key Facts
- 157 men and 70 women are registered each year: Increasing rates in women
- 63 men and 30 women die per year
- 78% of men survive one year, 66% three years, 63% five years
- 63% of women survive one year, 50% three years, 43% five years
- Men have better survival than women (15% higher at one year)
- Younger men and women have better survival than older people

12. Cancer of the Bladder

ICD-9 188

Incidence and Mortality

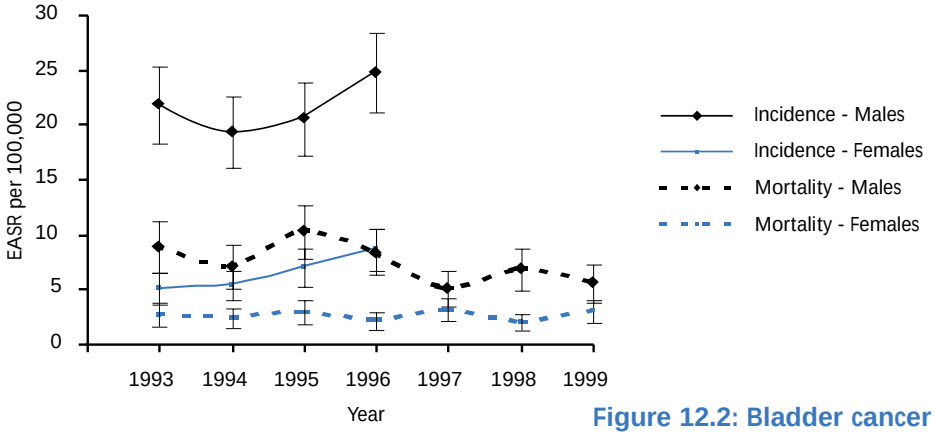
In 1996, cancer of the bladder was the fifth most common cancer in men and the twelfth most common cancer in women, accounting for over 4% and 2% of all cancers registered respectively. Between 1993 and 1996, an average of 157 men and 70 women were registered each year as having bladder cancer, with the incidence of bladder cancer in women rising in this period. Women had a statistically significant upward trend (P<0.05) in their incidence EASR, corresponding to an increase of 1.2 cases per 100,000 per year. There was no statistically significant (P>0.05) trend in the incidence EASR for men (Figure 12.1).

Between 1993 and 1996, approximately 63 men and 30 women died annually from bladder cancer. There were no statistically significant (P>0.05) trends in the mortality EASRs for men or women (Figure 12.1).

Table 12.1: Summary table for cancer of the bladder

Summary 1993-1996	Males	Females
Average annual number of bladder cancers registered	157	70
Average annual number of bladder cancer deaths	63	30
% cases excluded from survival analysis	1.6	2.9
Relative survival rates (Age-standardised rates) (%)		
1-year	78 (77)	63 (68)
3-year	66 (64)	50 (54)
5-year	63 (61)	43 (47)

Figure 12.1: European age-standardised incidence and mortality rates of cancer of the bladder by gender



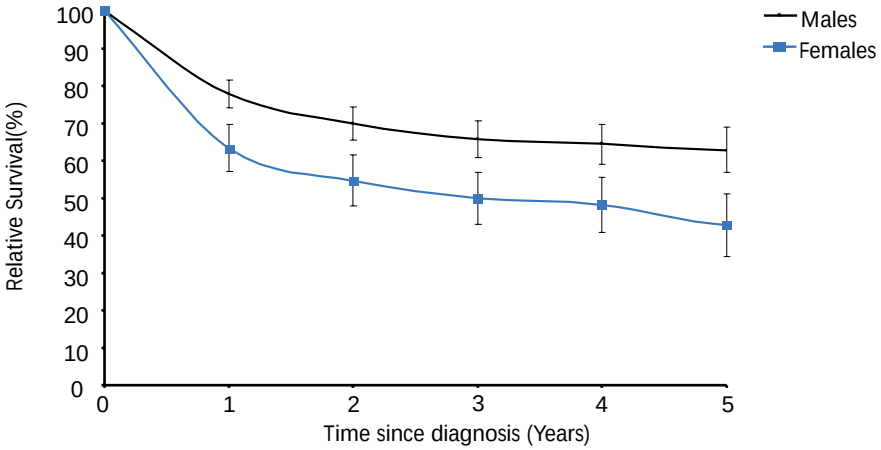
Survival

Overall survival rates are good for men and moderate for women.

Gender

There was a very highly statistically significant difference (P<0.001) in survival rates between men and women, with men (unlike most other cancers) having better overall survival than women. For men diagnosed between 1993 and 1996 as having cancer of the bladder, 78% survived one year, 66%

Figure 12.2: Bladder cancer survival by gender



three years and 63% five years. The corresponding relative survival rates for women were 63%, 50% and 43% respectively (Figure 12.2, Table 12.2).

Age

As the age at diagnosis increased, the percentage of patients surviving bladder cancer appeared to decrease (Figure 12.3). For both men and women with bladder cancer, there were statistically significant differences (P<0.001) between the survival rates of those diagnosed before their 65th birthday and those diagnosed at 65 years or older. Men aged below 65 years at diagnosis had 10% higher one-year survival than those aged 65 years and over, whilst for women the improvement in the younger age band was 21% (Table 12.2).

Figure 12.3: Bladder cancer survival at one and five years by gender and age at diagnosis

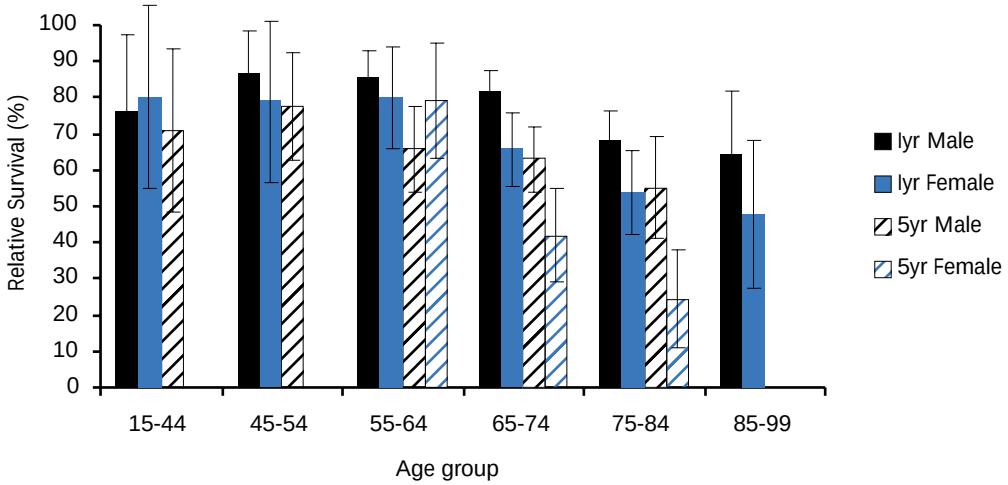


Table 12.2: Bladder cancer survival: Comparison by gender and age

The number of cases registered, the relative survival rates (%) and 95% confidence intervals at one, three and five years, for patients diagnosed 1993-6.

Gender	Age (years)	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival (%)	95% CI (+/-)
Both	15-99	885	73	3	61	4	56	5
	15-64	221	84	5	78	6	70	7
	65-99	664	70	4	54	5	50	6
Males	15-99	615	78	4	66	5	63	6
	15-64	163	85	6	79	7	70	9
	65-99	452	75	5	60	6	59	8
Females	15-99	270	63	6	50	7	43	8
	15-64	58	80	11	74	12	72	13
	65-99	212	59	7	42	8	33	9

Survival Comparisons

Our five-year survival rates for bladder cancer are lower than our near neighbours, especially for women (Table 12.3). Similarly, men and women here appear to have poorer survival than other European registries (Table 12.4). Comparisons between registries are extremely difficult to evaluate, as there is difficulty in defining as to what constitutes a fully malignant bladder cancer. Some registries include non-invasive (pTa) tumours and 'in-situ' flat tumours in their analysis. As both these classes have good prognosis, their inclusion will tend to improve survival. Currently there are groups working both at UK and international levels to harmonise the data.

Table 12.3: Bladder cancer survival in the 1990s: Local comparisons

The period of diagnosis, the number of cases registered and the five-year relative survival rates (%) for patients aged 15-99 years.

		Males		Females	
Registry	Diagnosis Period	No. of cases	5-year Survival (%)	No. of cases	5-year Survival (%)
Northern Ireland	93-96	615	63	270	43
Scotland	91-95	4180	71	1883	62
England & Wales	91-93	23493	66	9035	58
Republic of Ireland	94-98	1585	73	628	68

Table 12.4: Bladder cancer survival: Comparisons in Europe 1985-89

The number of cases registered between 1985 and 1989, five-year relative survival rates (%) and corresponding 95% confidence intervals for various European Registries

		Males		Females	
Registry (% Population coverage)		No. of Cases	5-year Survival (95%CI)	No. of Cases	5-year Survival (95%CI)
Denmark*	(100%)	3522	51 [49-54]	1196	44 [40-47]
Finland*	(100%)	2011	70 [68-73]	601	65 [60-70]
Austria, Tyrol	(7.8%)	206	67 [58-75]	70	62 [49-76]
French registries	(3.9%)	727	62 [58-68]	185	55 [45-65]
Germany, Saarland	(1.7%)	763	76 [71-81]	263	62 [54-70]
Italian registries	(9.7%)	4756	69 [67-70]	1071	64 [60-68]
Dutch registries	(20.5%)	421	67 [61-73]	128	49 [39-60]
Spanish registries	(9.6%)	2152	72 [69-74]	338	70 [63-76]
Sweden, South	(17.5%)	1185	75 [71-78]	330	70 [63-76]

* These registries are national population-based registries.

Comment

Survival rates for bladder cancer are good for men and moderate for women in most countries reversing the usual pattern. This may reflect the easier detection of haematuria (blood in urine) by men than women when urinating. Cigarette smoking is a recognised risk factor for bladder cancer, though the population-attributable risk is lower than that for lung cancer: approximately 45% for males and 30% for females. Some industrial processes are associated with increased risk of bladder cancer, especially those associated with the use of aromatic amines as in the manufacture of dyes, pigments and rubber etc. In some tropical countries infection with *Schistosomiasis haematobium* increases the risk of bladder cancer of the squamous cell variety.

For Health Gain

- Actions to reduce smoking levels include:
  - Reducing the numbers who start to smoke by banning advertising, increasing taxation, reducing availability of tobacco products and enhancing health education.
  - Helping those who smoke to stop.
  - Controlling environmental (passive) tobacco smoke.
- Increased awareness among the population about the importance of early investigation of symptoms especially blood in the urine.
- Participation in clinical trials, which can advise on the best treatments, should be enhanced.
- The organisation of services should be such as to ensure that those with the disease have as good an outcome as possible.
- The full range of palliative care services should be available for those with established disease.

Key Facts
- 108 men and 62 women registered per year
- 42 men and 23 women die each year
- Similar survival rates for men and women
- 69% of men survive one year, 59% three years, 53% five years
- 69% of women survive one year, 56% three years, 51% five years
- Younger women had better survival than older women.

13. Cancer of the Kidney

ICD-9 189 denotes Kidney & Other Unspecified Urinary Organs

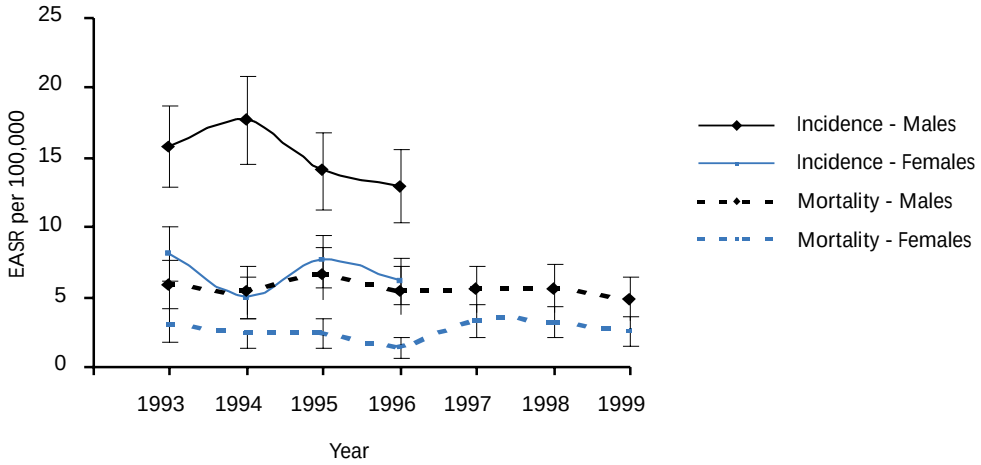
Incidence and Mortality

In 1996, cancer of the kidney was the tenth most common cancer in males and the sixteenth most common cancer in women, accounting for over 2% and 1% of all cancers registered in men and women respectively. Between 1993 and 1996, an average of 108 men and 62 women were registered annually as having cancer of the kidney, whilst approximately 42 men and 23 women died each year from this disease. There were no statistically significant (P>0.05) trends in either the incidence or mortality EASRs for men or women (Figure 13.1).

Table 13.1: Summary table for cancer of the kidney

Summary 1993-1996	Males	Females
Average annual number of kidney cancers registered	108	62
Average annual number of kidney cancer deaths	42	23
% cases excluded from survival analysis	3	2
Relative survival rates (Age-standardised rates) (%)		
1-year	69 (70)	69 (73)
3-year	59 (60)	56 (59)
5-year	53 (52)	51 (57)

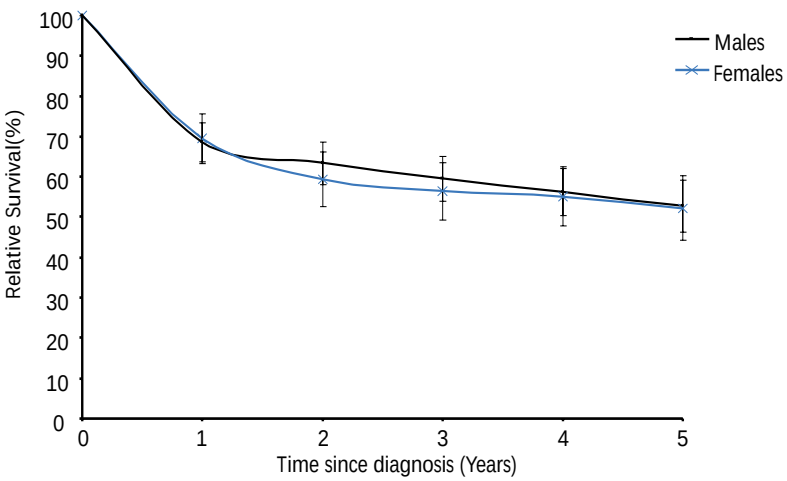
Figure 13.1: European age-standardised incidence and mortality rates of cancer of the kidney by gender



Survival

Overall survival was moderately good with 69% surviving one year and over 50% of patients alive after five years (see Figure 13.2).

Figure 13.2: Kidney cancer survival by gender



Gender

There was no statistically significant difference (P>0.05) in the survival rates between men and women. For men diagnosed between 1993 and 1996 as having cancer of the kidney, 69% survived one year, 59% three years and 53% five years. The corresponding relative survival rates for women were 69%, 56% and 51% respectively (Table 13.2).

Age

Age at diagnosis did not appear to have an effect on the survival rates for men, when analysed for under and over 65 years (Figure 13.3). However, women patients aged below 65 years at diagnosis had significantly better survival (P<0.05) than patients aged 65 years or over, with one-year survival almost 10% higher in the under 65 age group than in the 65 and over (Table 13.2).

Figure 13.3: Kidney cancer survival at one and five years by gender and age at diagnosis

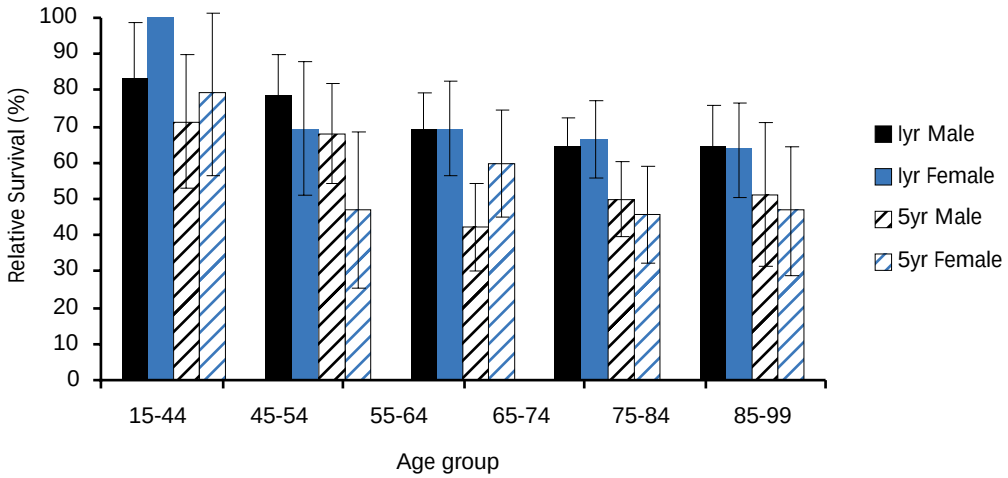


Table 13.2: Kidney cancer survival: Comparison by gender and age

The number of cases registered, the relative survival rates (%) and 95% confidence intervals at one, three and five years, for patients diagnosed 1993-6.

Gender	Age (years)	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival (%)	95% CI (+/-)
Both	15-99	650	69	4	58	4	52	5
	15-64	262	74	5	63	6	56	7
	65-99	388	65	5	54	6	48	7
Males	15-99	412	69	5	59	6	53	6
	15-64	170	74	7	62	8	55	9
	65-99	242	64	7	57	8	50	9
Females	15-99	238	69	6	56	7	51	8
	15-64	92	74	9	64	10	58	11
	65-99	146	65	8	49	10	46	11

Survival Comparisons

Our five-year survival rates for kidney cancer were at least 12% higher than the rest of the UK and similar to the Republic of Ireland (Table 13.3). On comparison with other European registries we were only average (Table 13.4). Note that the time period covered by the European registries is earlier and their survival rates are likely to have subsequently improved.

Table 13.3: Kidney cancer survival in the 1990s: Local comparisons

The period of diagnosis, the number of cases registered and the five-year relative survival rates (%) for patients aged 15-99 years.

		Males		Females	
Registry	Diagnosis Period	No. of cases	5-year Survival (%)	No. of cases	5-year Survival (%)
Northern Ireland	93-96	412	53	238	51
Scotland	91-95	1327	40	924	37
England & Wales	91-93	6965	41	4103	37
Republic of Ireland	94-98	707	51	410	55

Table 13.4: Kidney cancer survival: Comparisons in Europe 1985-89

The number of cases registered between 1985 and 1989, five-year relative survival rates (%) and corresponding 95% confidence intervals for various European Registries

		Males		Females	
Registry (% Population coverage)		No. of Cases	5-year Survival (95%CI)	No. of Cases	5-year Survival (95%CI)
Denmark*	(100%)	1550	36 [34-39]	1297	33 [30-36]
Finland*	(100%)	1446	48 [45-51]	1159	51 [48-55]
Austria, Tyrol	(7.8%)	107	59 [48-69]	77	71 [58-83]
French registries	(3.9%)	387	58 [52-64]	210	58 [49-66]
Germany, Saarland	(1.7%)	324	50 [44-57]	231	55 [48-63]
Italian registries	(9.7%)	1503	54 [51-57]	821	55 [51-59]
Dutch registries	(20.5%)	201	56 [48-64]	135	47 [37-56]
Spanish registries	(9.6%)	520	53 [48-58]	245	52 [45-60]
Sweden, South	(17.5%)	489	49 [44-54]	346	47 [41-53]

* These registries are national population-based registries.

Comment

Survival from kidney cancer is moderately good with over half the patients alive five years after diagnosis. A large proportion (probably over a third) of kidney cancers are associated with tobacco use. In Europe the incidence and mortality from cancer of the kidney is generally increasing, though improved survival may have contributed to some divergence in the two trends. Incidence levels are particularly high in France and the Nordic countries. Our survival rates in the 1990s, although higher than the rest of the UK, lags behind earlier survival rates for many European countries, indicating room for improvement.

For Health Gain

- Actions to reduce smoking levels including:
  - Reducing the numbers who start to smoke by banning advertising, increasing taxation, reducing availability of tobacco products and enhancing health education.
  - Helping those who smoke to stop.
- Increased awareness among the population about the importance of early investigation of symptoms such as blood in the urine or back pain.
- Participation in clinical trials, which can advise on the best treatments, should be enhanced.
- The organisation of services should be such as to ensure that those with the disease have as good an outcome as possible.
- The full range of palliative care services should be available for those with established disease.

Key Facts

- 122 men and 113 women are registered each year
- 62 men and 47 women die each year, rising death rate in women
- Similar survival in men and women
- 66% of men survive one year, 55% three years and 49% five years
- 66% of women survive one year, 54% three years and 51% five years
- Younger men and women have better survival than older people.

14. Non-Hodgkin's Lymphoma

ICD-9 200 + 202, denotes reticulosarcoma, lymphosarcoma and lymphoma but excludes Hodgkin's Disease

Incidence and Mortality

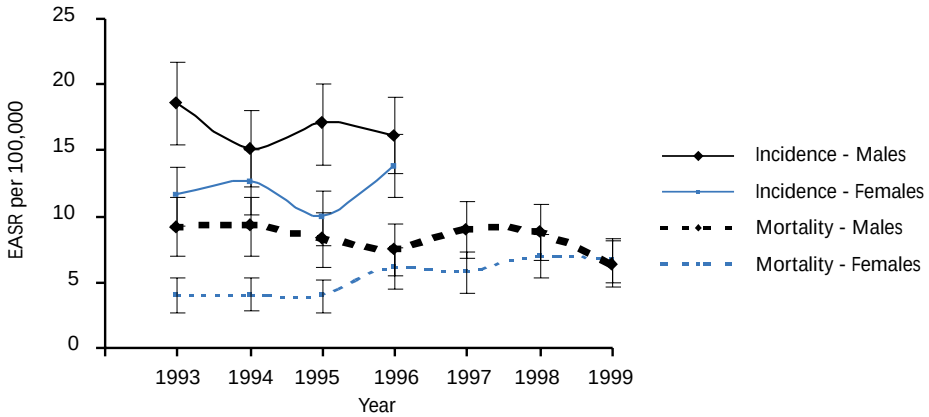
In 1996, non-Hodgkin's lymphoma (NHL) was the eighth most common cancer in men and women, accounting for almost 3% of all cancers registered. Between 1993 and 1996, an average of 122 men and 113 women were registered annually as having NHL, whilst approximately 62 men and 47 women died each year from this disease. Between 1993 and 1996, there were no statistically significant (P>0.05) trends in the incidence EASRs exhibited by men or women (Figure 14.1). However, there was a statistically significant upward trend (P<0.01) in the mortality EASR for women, with the standardised mortality rate for women increasing by almost one death per 100,000 per year (Figure 14.1).

Table 14.1: Summary table for non-Hodgkin's lymphoma

Summary 1993-1996	Males	Females
Average annual number of non-Hodgkin's lymphomas registered	122	113
Average annual number of non-Hodgkin's lymphoma deaths	62	47
% cases excluded from survival analysis	3.3	2.5
Relative survival rates (Age-standardised rates) (%)		
1-year	66 (69)	66 (73)
3-year	55 (59)	54 (61)
5-year	49 (54)	51 (56)

Note: This report is based on cancers diagnosed between ages 15 and 99. Each year there are on average less than five cases of NHL diagnosed in those under 15 years which for technical reasons have not been included in this section of the report (see Childhood section).

Figure 14.1: European age-standardised incidence and mortality rates of non-Hodgkin's lymphoma by gender

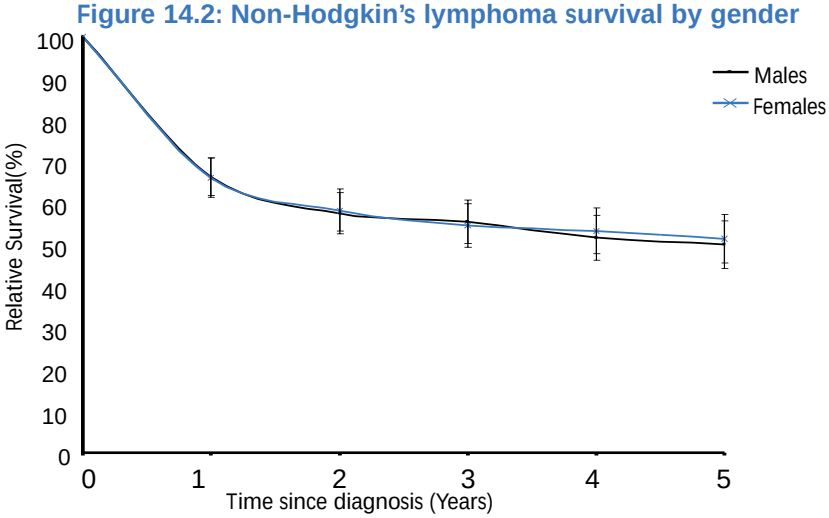


Note: Care should be taken in interpreting these sections on gender, age and geographical area, as NHL is comprised of several conditions. Each disease subtype has its own pattern and prognosis. It is impossible to accurately examine the survival of individual diseases due to the small number of cases involved.

Survival

Overall survival was moderately good with two thirds of patients surviving one year and over 50% alive five years after diagnosis (see Figure 14.2).

Figure 14.2: Non-Hodgkin's lymphoma survival by gender



Gender

There was no statistically significant difference (P>0.05) in the survival rates between men and women. For men diagnosed between 1993 and 1996 as having NHL, 66% survived one year, 55% three years and 49% five years. The corresponding relative survival rates for women were 66%, 54% and 51% respectively (Table 14.2).

Age

As the age at diagnosis increased, the percentage of patients surviving NHL appeared to decrease (Figure 14.3), except for the very old where some cases may include chronic lymphatic leukaemia. Note, also numbers are small in this category. For both men and women with NHL, there were statistically significant differences (P<0.001) between the survival of rates of those diagnosed before their 65th birthday and those diagnosed at 65 years or older. Men aged below 65 years had over 20% higher one-year survival than those aged 65 years and over, whilst for women the improvement in the younger age band was 25% (Table 14.2).

Figure 14.3: Non-Hodgkin's lymphoma survival at one and five years by gender and age at diagnosis

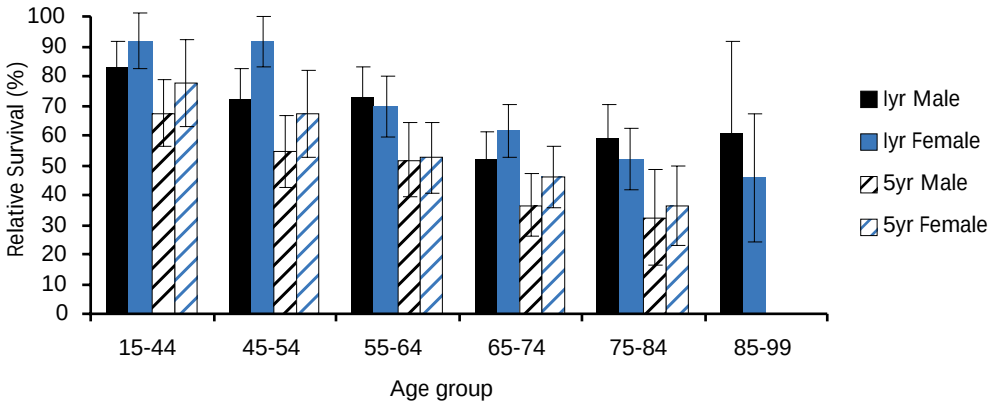


Table 14.2: Non-Hodgkin's lymphoma survival: Comparison by gender and age

The number of cases registered, the relative survival rates (%) and 95% confidence intervals at one, three and five years, for patients diagnosed 1993-6.

Gender	Age (years)	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival (%)	95% CI (+/-)
Both	15-99	896	66	3	55	4	50	4
	15-64	397	78	4	65	5	60	5
	65-99	499	56	5	45	5	40	6
Males	15-99	463	66	5	55	5	49	6
	15-64	234	76	6	63	7	58	7
	65-99	229	55	7	44	8	37	9
Females	15-99	433	66	5	54	5	51	6
	15-64	163	81	6	67	8	62	8
	65-99	270	56	6	45	7	42	8

Note: On average five cases per year occurred in those patients under 15 years which were excluded from the analysis (see Childhood section).

Survival Comparisons

Our five-year survival rates for NHL were slightly better than the rest of the UK and lower than the Republic of Ireland (Table 14.3). We were similar to the other European registries (Table 14.4) but as these related to an earlier period their survival rates have possibly now improved.

Table 14.3: Non-Hodgkin's lymphoma survival in the 1990s: Local comparisons

The period of diagnosis, the number of cases registered and the five-year relative survival rates (%) for patients aged 15-99 years.

		Males		Females	
Registry	Diagnosis Period	No. of cases	5-year Survival (%)	No. of cases	5-year Survival (%)
Northern Ireland	93-96	463	49	433	51
Scotland	91-95	1621	45	1702	45
England & Wales	91-93	9488	46	8209	48
Republic of Ireland	94-98	1023	50	909	56

Table 14.4: Non-Hodgkin's lymphoma survival: Comparisons in Europe 1985-89

The number of cases registered between 1985 and 1989, five-year relative survival rates (%) and corresponding 95% confidence intervals for various European Registries

		Males		Females	
Registry (% Population coverage)		No. of Cases	5-year Survival (95%CI)	No. of Cases	5-year Survival (95%CI)
Denmark*	(100%)	1514	46 [43-49]	1354	49 [46-53]
Finland*	(100%)	1114	46 [42-49]	1234	47 [44-51]
Austria, Tyrol	(7.8%)	44	66 [48-82]	86	62 [50-74]
French registries	(3.9%)	514	55 [49-60]	468	53 [47-59]
Germany, Saarland	(1.7%)	217	51 [42-59]	171	51 [42-60]
Italian registries	(9.7%)	1338	47 [43-50]	1224	49 [46-52]
Dutch registries	(20.5%)	221	45 [38-53]	167	46 [38-55]
Spanish registries	(9.6%)	474	55 [50-61]	388	48 [42-54]
Sweden, South	(17.5%)	496	47 [42-52]	400	50 [44-56]

* These registries are national population-based registries.

Note

There are also about 50 cases of Hodgkin's lymphoma per year. Data from other countries indicate good relative survival of 75% at five years for English registries, 72% for Denmark and 74% in Finland. Survival for Hodgkin's lymphoma is better among younger patients.

Comment

Non-Hodgkin's lymphoma is the most common of leukaemias and lymphomas. It is a collection of malignancies whose clinical behaviour, prognosis and management vary widely according to the histological subtype, stage and bulk of the disease.

Typically NHL arises in lymph node tissue, but in 15-20% of patients, the tumour develops in a site other than a node, for example, in bone, stomach or thyroid, small or large intestine, breast or brain. Little is known about the causes of NHL, but occupational exposure to chemicals appears to increase the risk, particularly exposure to phenoxy herbicides. Other risk factors include family history and immunodeficiency disorders. Incidence has increased in many countries in recent years, with much of the increase of lymphomas in young men attributed to AIDS.

Until about 25 years ago, most patients died of their disease. Effective combination chemotherapy, initially developed for Hodgkin's disease, has resulted in improved survival and the cure of advanced tumours in some patients with NHL.

For Health Gain

- Participation in clinical trials, which can advise on the best treatments, should be enhanced.
- The organisation of services should be such as to ensure that those with the disease have as good an outcome as possible.
- The full range of palliative care services should be available for those with established disease.

15. Leukaemia

ICD-9 204-8, includes lymphoid leukaemia, myeloid leukaemia, monocytic leukaemia, other specified leukaemia and leukaemia unspecified

Note: This section is based on cancers diagnosed between ages 15 and 99. Each year there are about 20 cases of leukaemia diagnosed in those under 15 which for technical reasons have not been included in this analysis (see Childhood section).

Key Facts

- 87 men and 61 women are registered each year
- 49 men and 38 women die each year
- Similar survival rates for men and women
- 55% of men survived one year, 37% three years, 29% five years
- 49% of women survived one year, 38% three years, 33% five years
- Younger men have better survival than older men

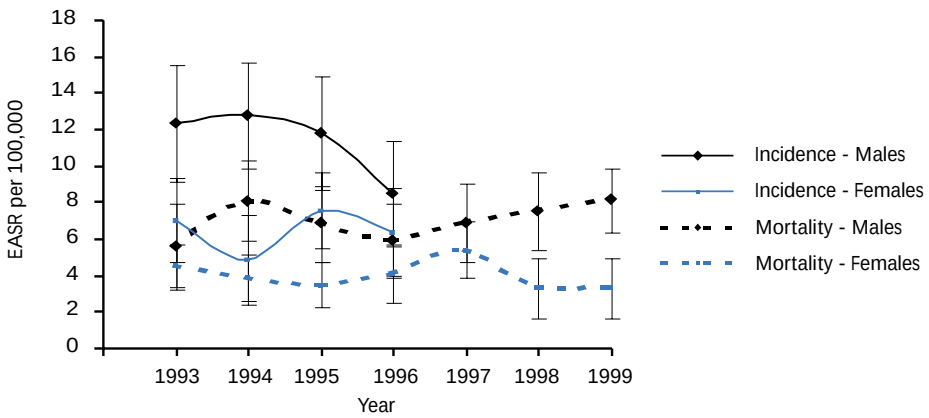
Incidence and Mortality

In 1996, leukaemia was the fifteenth most common cancer in men and sixteenth in women, accounting for almost 2% of all cancers registered. Between 1993 and 1996, an average of 87 men and 61 women were registered annually as having leukaemia, whilst approximately 49 men and 38 women died each year from this disease. There were no statistically significant trends (P>0.05) in either the incidence or mortality EASRs exhibited by men or women (Figure 15.1).

Table 15.1: Summary table for adult leukaemia

Summary 1993-1996	Males	Females
Average annual number of leukaemia cases registered	87	61
Average annual number of leukaemia deaths	49	38
% cases excluded from survival analysis	4.1	3.7
Relative survival rates (Age-standardised rates) (%)		
1-year	55 (61)	49 (49)
3-year	37 (40)	38 (38)
5-year	29 (30)	33 (33)

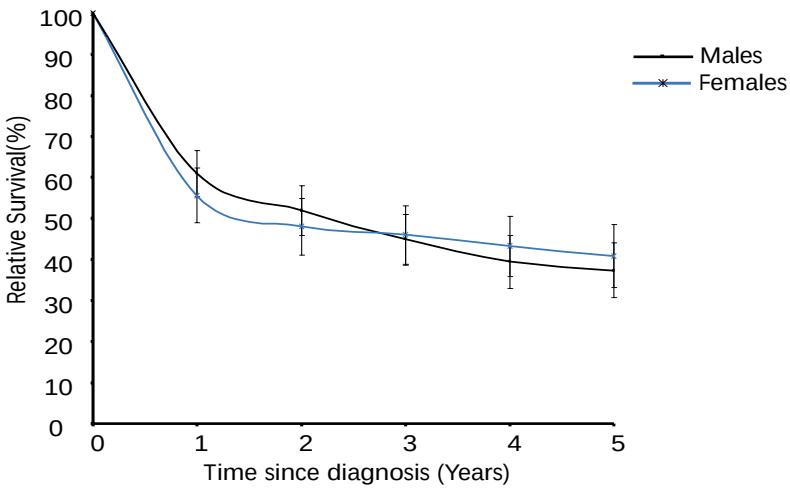
Figure 15.1: European age-standardised incidence and mortality rates of adult leukaemia by gender



Survival

Overall survival was moderate to poor with half of patients surviving one year and less than one third alive after five years (see Figure 15.2).

Figure 15.2: Adult leukaemia survival by gender



Gender

There was no statistically significant difference (P>0.05) in the survival rates between men and women. For men diagnosed between 1993 and 1996 as having leukaemia, 55% survived one year, 37% three years and 29% five years. The corresponding relative survival rates for women were 49%, 38% and 33% respectively (Table 15.2).

Age

As the age at diagnosis increased, the percentage of men surviving leukaemia appeared to decrease (Figure 15.3). For men with leukaemia, there were statistically significant differences (P<0.01) between the survival rates of those diagnosed before their 65th birthday and those diagnosed at 65 years or older. Men aged below 65 years had over 20% higher one-year survival than those aged 65 years and over (Table 15.2). There was no statistically significant difference (P>0.05) in the survival rates of women diagnosed before or after their 65th birthday.

Figure 15.3: Adult leukaemia survival at one, three and five years by gender and age at diagnosis

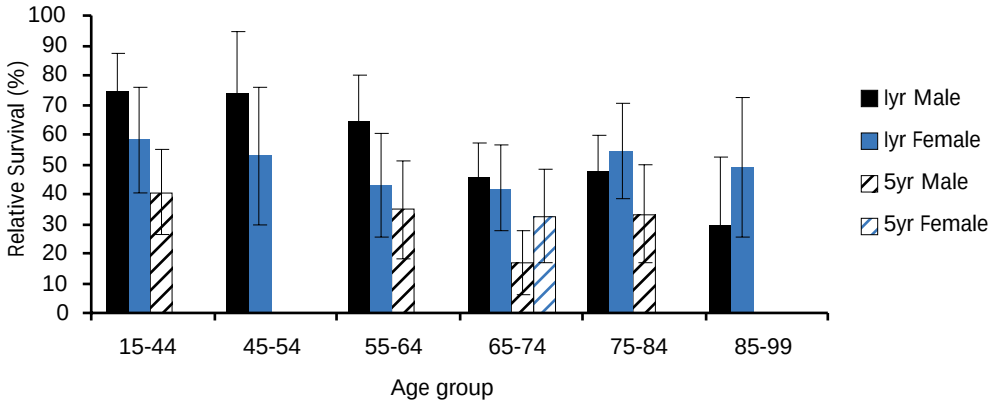


Table 15.2: Adult leukaemia survival by gender and age

The number of cases registered, the relative survival rates (%) and 95% confidence intervals at one, three and five years, for patients diagnosed 1993-6.

Gender	Age (years)	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival (%)	95% CI (+/-)
Both	15-99	484	52	5	37	5	30	5
	15-64	190	62	7	43	7	34	7
	65-99	294	46	6	33	6	27	7
Males	15-99	285	55	6	37	6	29	7
	15-64	107	71	9	48	10	36	10
	65-99	178	45	8	29	8	22	9
Females	15-99	199	49	7	38	8	33	8
	15-64	83	51	11	37	11	32	11
	65-99	116	48	10	39	11	34	12

Survival Comparisons

Our five-year survival rates for adult leukaemia were similar to the rest of the UK (Table 15.3) but lower than the Republic of Ireland and most other European registries (Table 15.4). Note that the time period covered by the European registries is earlier and their survival rates are likely to have subsequently improved.

Table 15.3: Adult leukaemia survival in the 1990s: Local comparisons

The period of diagnosis, the number of cases registered and the five-year relative survival rates (%) for patients aged 15-99 years.

		Males		Females	
Registry	Diagnosis Period	No. of cases	5-year Survival (%)	No. of cases	5-year Survival (%)
Northern Ireland	93-96	285	29	199	33
Scotland	91-95	1193	31	945	32
England & Wales	91-93	6736	30	5166	30
Republic of Ireland	94-98	613	36	472	42

Table 15.4: Leukaemia survival: Comparisons in Europe 1985-89

The number of cases registered between 1985 and 1989, five-year relative survival rates (%) and corresponding 95% confidence intervals for various European Registries

		Males		Females	
Registry (% Population coverage)		No. of Cases	5-year Survival (95%CI)	No. of Cases	5-year Survival (95%CI)
Denmark*	(100%)	1645	29 [27-32]	1227	27 [24-30]
Finland*	(100%)	920	37 [33-40]	811	34 [30-38]
Austria, Tyrol	(7.8%)	64	47 [34-61]	48	45 [31-62]
French registries	(3.9%)	553	48 [42-53]	434	50 [44-56]
Germany, Saarland	(1.7%)	252	39 [32-46]	203	41 [33-50]
Italian registries	(9.7%)	1165	26 [24-29]	874	31 [27-34]
Dutch registries	(20.5%)	169	34 [26-43]	109	38 [28-49]
Spanish registries	(9.6%)	479	41 [35-46]	299	39 [32-45]
Sweden, South	(17.5%)	446	34 [29-39]	319	34 [28-40]

* These registries are national population-based registries.

Comment

Survival from adult leukaemia is moderately good. The group of leukaemias studied comprises a diverse group of malignancies. The main recognised risk factors for leukaemia are exposure to ionising radiation, some cytotoxic drugs and benzene. However, the cause of most cases of leukaemia remains unexplained.

For Health Gain

- Participation in clinical trials, which can advise on the best treatments, should be enhanced.
- The organisation of services should be such as to ensure that those with the disease have as good an outcome as possible.
- The full range of palliative care services should be available for those with established disease.

Key Facts
- 31 boys and 26 girls are registered each year
- 9 boys and 5 girls die per year
- Boys and girls have similar survival rates
- 94% of boys survive one year, 86% three years and 79% five years
- 92% of girls survive one year, 84% three years and 81% five years

16. Childhood Cancers

All cancers diagnosed in patients under 15 years of age

Incidence and Mortality

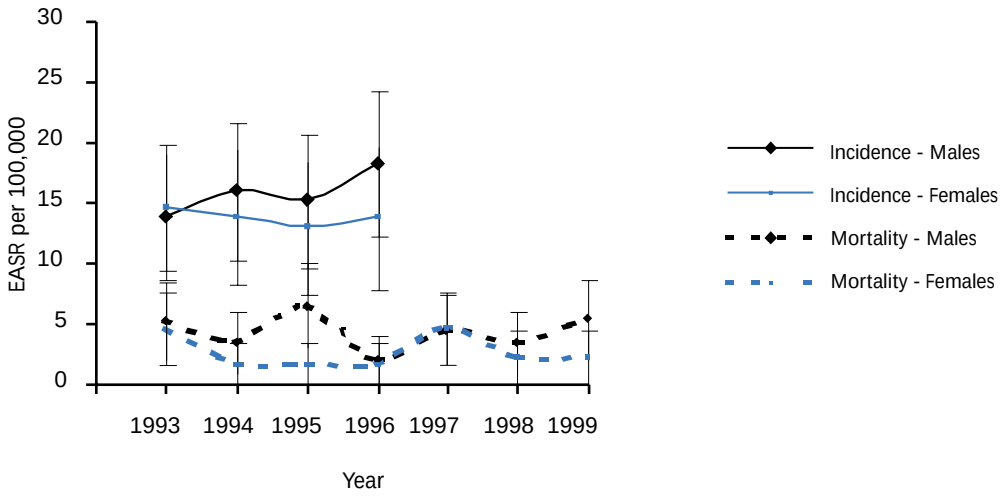
Between 1993 and 1996, an average of 31 boys and 26 girls were registered each year as having cancer, whilst approximately 9 boys and 5 girls died each year from cancer. There were no statistically significant (P>0.05) trends in either the incidence or mortality EASRs exhibited by the children (Figure 16.1).

Table 16.1: Summary table of childhood cancers

Summary 1993-1996	Males	Females
Average annual number of cancers registered	31	26
Average annual number of cancer deaths	9	5
Relative survival rates(%)		
1-year	94	92
3-year	86	84
5-year	79	81

Note: No cases were excluded from the analysis

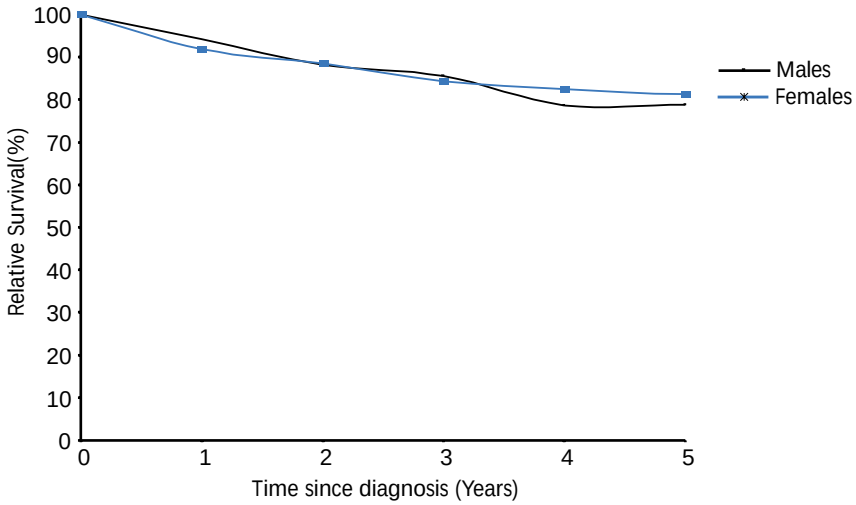
Figure 16.1: European age-standardised incidence and mortality rates of childhood cancers by gender



Survival

Overall survival is good for childhood cancers with about 80% surviving over five years (Figure 16.2).

Figure 16.2: Childhood cancer survival by gender



Gender

There was no statistically significant difference (P>0.05) in survival rates between boys and girls. For boys diagnosed between 1993 and 1996 as having cancer, 94% survived one year, 86% survived three years and 79% survived five years. The corresponding relative survival rates for girls were 92%, 84% and 81% respectively (Table 16.2).

Table 16.2: Cancer survival in children (0-14 years) by gender

The number of cases registered, the relative survival rates (%) and 95% confidence intervals at one, three and five years, for children diagnosed 1993-6.

Gender	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival (%)	95% CI (+/-)
Both	270	93	4	85	4	80	5
Males	150	94	4	86	6	79	7
Females	120	92	5	84	7	81	7

Leukaemia

The most common cancer diagnosed in children is leukaemia, with an average of 11 boys and 9 girls registered annually between 1993 and 1996 as having this disease, whilst approximately 3 boys and 2 girls died each year from this condition. There was no statistically significant difference (P>0.05) in leukaemia survival rates between boys and girls. For boys diagnosed between 1993 and 1996 as having leukaemia, 100% survived one year, 91% survived three years and 83% survived five years. The corresponding relative survival rates for girls were 89%, 84% and 74% respectively (Table 16.3).

Table 16.3: Leukaemia survival in children (0-14 years) by gender

The number of cases registered, the relative survival rates (%) and 95% confidence intervals at one, three and five years, for children diagnosed 1993-6.

Gender	No. of Cases	1-year Survival (%)	95% CI (+/-)	3-year Survival (%)	95% CI (+/-)	5-year Survival (%)	95% CI (+/-)
Both	79	95	5	87	7	79	10
Males	42	100	0	91	9	83	12
Females	37	89	10	84	12	74	15

Survival Comparisons

Our five-year survival rates for childhood leukaemia were better than England and Wales and much higher than other European registries (Table 16.4 and Table 16.5). However, this is certainly due to our survival rates being based on much more recent data and reflects the advances in treatments over time. The other registries would expect much better current survival rates.

Table 16.4: Childhood leukaemia survival in England and Wales 1986 to 1990.

The number of cases registered, the relative survival rates (%) at one and five years, for children diagnosed 1986-90 (ref. 26)

Gender	No. of Cases	1-year Survival (%)	5-year Survival (%)
Both	1640	86	69
Males	894	88	66
Females	746	85	72

Table 16.5: Childhood leukaemia survival: Comparisons in Europe 1983-85

The number of cases registered between 1983 and 1985, and the five-year relative survival rates (%) for various European Registries (ref. 30)

		Males		Females	
Registry (% Population coverage)		No. of Cases	5-year Survival (%)	No. of Cases	5-year Survival (%)
Denmark*	(100%)	647	24	481	27
Finland*	(100%)	349	24	312	28
French registries	(3.9%)	193	41	137	42
Germany, Saarland	(1.7%)	81	31	67	22
Italian registries	(9.7%)	173	24	111	18
Dutch registries	(20.5%)	80	29	43	50
Spanish registries	(9.6%)	19	18	10	11

*These registries are national population-based registries.

Comment

Leukaemias and brain tumours together account for over half of all childhood cancers. Many of the more common childhood tumours are embryonal in origin, for example Wilms' tumour, neuroblastoma, retinoblastoma, and rarely occur in adults, whilst the common solid adult tumours, such as carcinomas of the lung, stomach, colon and breast, are extremely rare in children (31).

Before the introduction of combination chemotherapy in the late 1960s and early 1970s, very few childhood cancers could be treated effectively. Since then advances in treatment and the increased centralisation of specialised care (32) have significantly improved survival rates. The five-year survival rate in the UK has risen from 26% for 1962-70 patients to 65% for 1986-88 patients (33) and now for Northern Ireland patients (1993-6) stands at 79%.

In the vast majority of cases there are no known causes of childhood cancer. It seems likely, because of the types of cells affected and the early age at which many childhood cancers develop, that prenatal including pre-conception factors may be important, but no widespread risk factor has been identified. Other possible risk factors are:

(i) Genetic – a small proportion of childhood cancers (less than 5%) have an obvious family history. However, to date for the majority of childhood cancers there is no evidence of a strong heritable component.

(ii) Ionising radiation – High radiation exposure, for example, that following the atomic explosion at Hiroshima, and radiotherapy to children, increases the risk of developing cancer.

(iii) Electromagnetic fields – No association has yet been established and investigation is continuing (31).

(iv) Childhood infecton - It is an hypothesis that Acute Lymphatic Leukaemia (ALL) in childhood is caused by an inappropriate immunological response to a common infection or infections in children whose immune systems are not 'programmed' by early exposure to these infections (34, 35, 36). In support of this hypothesis, several studies have reported that early exposure to infection (37, 38, 39) is associated with a reduced risk of childhood ALL.

For childhood tumours with poor prognosis, new drugs, more effective ways of giving known drugs and new methods of treatment are being developed. This should ensure continued improvement in survival.

For Health Gain

- Ensure children receive optimal care. It has been shown that the best results for many tumour types are obtained when children are referred to specialist centres.
- Participation in clinical trials, which can advise on the best treatments, should be enhanced.

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Statistical Terms and Methods

Incident Cases - newly diagnosed cases of cancer.

Crude Rate - the numbers of incident cases per 100,000 of population calculated as:

$$C = \frac{R}{N} \times 100{,}000$$

where:

R is the total number of incident cases;

N is the total number [of person-years of observation].

Age Specific Rates - the rates per 100,000 specific to particular age groups (0-4, 5-9..80-84,85+) calculated as:

$$a_i = \frac{r_i}{n_i} \times 100{,}000$$

where:

a_i is the age-specific rate;

r_i is the number of incident cases is age group i;

n_i is the number of person-years.

Age Standardised Rates (World and European)

- The direct method employed here calculates theoretical rates which would apply if the age specific rates for Northern Ireland applied in the standard population. The standard populations used are the World and European Populations. The world has a younger age structure. The purpose of the standard populations is to provide an accepted standard set of population 'weights' which permit national and international comparisons to be made by taking account of variation in age structure between diverse populations. They are calculated as follows:

$$ASR = \frac{\sum_{i=1}^{G} a_i w_i}{\sum_{i=1}^{G} w_i}$$

where:

a_i is the age-specific rate in age class i;

w_i is the standard population is age class i;

G represents the number of age intervals.

Cumulative Risk - Generally expressed as a percentage, this measure represents the risk an individual would have of developing the disease in question over a given life span. For childhood cancers the ages of 0-14 is used; for overall lifespan the appropriate measure is taken as 0-74 years. It is defined as:

$$\text{Cumulative Risk} = 100 \times [1 - \exp(-\text{cumulative rate} / 100)]$$

Where:

$$\text{The cumulative rate} = \sum_{i=1}^{A} a_i \, t_i$$

and a_i is the age specific incidence rate in the ith class which is t_i years long (generally five years);

Observed Survival - is the probability that a group of patients with a given disease will be alive at a specified time-point i after diagnosis, irrespective of the cause of death.

It is calculated by $S_i = \prod_{j=1}^{i} s_j$ where

$s_j = 1 - \frac{d_j}{n_j}$ (conditional probability of surviving to t_j, having survived to just before tj)

$t_j = j^{th}$ observed time of death
d_j = number of deaths occurring at time-point t_j
n_j = number of patients alive just before time t_j (i.e. including deaths at t_j by excluding patients censored before t_j)

Censored patients are those whose vital status is not known after a given time-point. In the case of this report, patients who are still alive on 31st December 1999 will be censored on that date because death data are not complete on the cancer registration file after that date (6).

Relative Survival Rate - is the ratio of the observed survival rate to the expected survival rate for a group of people in the general population similar to the patient

Relative Survival

Observed survival is always likely to be lower in older patients because they are at greater risk of dying from other causes. This makes it difficult to compare survival between age groups or between populations with different age distributions. An alternative measure of survival, *relative survival*, attempts to overcome this problem by calculating survival as the ratio of the probability of observed survival divided by the expected survival (6). This can be thought of as a measure of the *proportion of cancer patients who die of their disease, after adjustment for death from other causes*. At time-point t_j relative survival is calculated by

$$R_i = \frac{S_i}{E_i}$$

S_i is the observed survival as described earlier; E_i is the expected survival, that is the average expected survival in a group of the general population having the same age and sex structure as the patients under study. The expected probabilities are obtained from life tables for Northern Ireland. These life tables allow calculation of the expected probability of survival at each single year of age at death (up to 99) (6). Thus if 5-year survival is 60% among a group of cancer patients of whom 90% would have been expected to survive that long, the relative survival is 67% (60/90). By convention relative survival is described as a "rate", although strictly it is a ratio of two percentages (40).

Standardising survival rates

Relative survival estimates account for age-specific differences in background mortality, but not for the fact that survival prognosis after a diagnosis of cancer also differs with age, and is in general worse in older patients. In order to compare survival in populations with different age structures, survival estimated can be age-standardised by calculating the survival in a 'standard population' of fixed age/sex distribution. The standardised survival rate is the sum of the age- and sex-specific survival rates multiplied by the corresponding sex and age group weight for the standard population.
The following steps are used to standardise for age and sex:
1. Specify a standard age and sex distribution by the proportions of the standard population falling within each age and sex group, P_{ij}
2. Calculate survival within each age and sex group in the population of interest, S_{ij}
3. Calculate standardised survival (A) as a weighted sum of the age- and sex-specific survival estimates, S_{ij}, with weights given by the standard population proportions, P_{ij}

$$A = \sum_{i,\,j} P_{ij} S_{ij}$$

The World Standard Cancer Patient Population (41) (Appendix 3) is used to estimate age-standardised survival rates in this publication. It specifies a separate population for each cancer.

Precision of survival estimates

Precision of survival estimates can be measured by their standard errors or confidence intervals (6). Confidence intervals are a range of values for a variable (e.g. a rate) constructed so that this range has a specified probability of including the true value of the variable (42).
As sample size decreases, accuracy of the survival rates will be lower and thus should be interpreted with caution when this is the case. If there were less than 10 cases in an analysis the survival estimate has not been calculated and is denoted by '-'.

Interpretation of indicators

The relative survival rate can be interpreted as an estimate of the proportion of cancer patients who die of their disease, after adjustment for death from other causes.
A relative survival rate of 100% for a given period would imply that the cancer patients had had the same survival (or death) rates as the general population, not that they had all survived. Similarly, if the relative survival remains constant at (say) ten or more years after diagnosis, this implies that the ten-year survivors no longer have higher mortality than the general population (43).

Abbreviations

ASR – Age standardised rate

DCO – Death Certificate Only

DHSSPS – Department of Health, Social Services and Public Safety

EASR – European Age Standardised Rate

GRO – General Register Office

ICD 9 – International Classification of Disease 9th Revision

ICD 10 – International Classification of Disease 10th Revision

NICR – N. Ireland Cancer Registry

NMS – Non melanoma skin

NHL – Non Hodgkin's lymphoma

RSR – Relative Survival Rate

WASR – World Age Standardised Rate

Appendix 1: World and European Standard Populations

Numbers in each age group per 100,000

Age Group	World	European
0-4	12000	8000
5-9	10000	7000
10-14	9000	7000
15-19	9000	7000
20-24	8000	7000
25-29	8000	7000
30-34	6000	7000
35-39	6000	7000
40-44	6000	7000
45-49	6000	7000
50-54	5000	7000
55-59	4000	6000
60-64	4000	5000
65-69	3000	4000
70-74	2000	3000
75-79	1000	2000
80-84	500	1000
85 and over	500	1000
All Ages	100000	100000

Appendix 2 : Staging

The stage of a tumour is a measure of how far a malignancy has spread in the body. The higher the stage the greater the disease has spread and so the less favourable prognosis for the patient.

Staging is carried out using a number of laboratory and clinical tests at diagnosis. A number of staging classifications for different cancer sites have been developed over the years, but broadly speaking they all include the extent of the primary tumour (T), the absence or presence of lymph node metastasis (N) and the absence or presence of distant metastasis (M). The most used staging system combines these three elements to produce an overall TNM stage for the tumour. The ways of arriving at the overall TNM stage differs slightly from site to site (27.). For statistical analysis these are usually combined into four stages, ranging from early tumours Stage 1 to Stage IV tumours that have distant metastasis.

In addition to the TNM system, a number of site specific staging systems are frequently in use. A comparison of the different coding systems and the stages used in this report is shown below. For a more detailed description see Hermanek et al (27).

Colorectal

Stage I	T1	N0	M0	DUKES A
	T2	N0	M0	Early tumour does not extend through muscle, no nodal involvement or metastatic spread to distant sites.
Stage II	T3	N0	M0	DUKES B
	T4	N0	M0	Tumour extends through muscle, no nodal involvement or metastatic spread to distant sites.
Stage III	Any T	Any N	M0	DUKES C Tumour with nodal involvement, no spread to distant metastatic sites.
Stage IV	Any T	Any N	M1	DUKES D Metastatic spread to distant sites

Melanoma

Stage I	Tis	N0	M0	Clark's Level I Very early 'in situ' tumour, no nodal involvement or metastatic spread.
Stage II	T1	N0	M0	Clark's Level II Tumour invades papillary dermis, no nodal involvement or metastatic spread.
Stage III	T2	N0	M0	Clark's Level III Tumour invades papillary-reticular interface, no nodal involvement or metastatic spread.
Stage IV	T3	N0	M0	Clark's Level IV Tumour invades reticular dermis, no nodal involvement or metastatic spread.
Stage V	T4	N0	M0	Clark's Level V
	Any T	N1	M0	Tumour invades subcutaneous tissue or any metastatic spread elsewhere.
	Any T	Any N	M1	

Alternatively, for melanomas histopathologists report in the depth of the tumour as follows:

Breslow	0.00-0.75 mm
	0.76-1.50 mm
	1.51-3.00 mm
	>3.00 mm

Breast

Stage I	TI	N0	M0	Early tumour, no nodal involvement or metastatic spread to distant sites.
Stage II	T0	N1	M0	Tumour and in some cases nodal involvement but no metastatic spread to distant sites.
	T1	N1	M0	
	T2	N0	M0	
	T2	N1	M0	
	T3	N0	M0	
Stage III	T0	N2	M0	Tumour with nodes but no metastases to distant sites
	T1	N2	M0	
	T2	N2	M0	
	T3	N1	M0	
	T3	N2	M0	
	T4	Any N	M0	
Stage IV	Any T	Any N	M1	Metastatic spread to distant sites

Where,

T0 – No evidence of primary tumour
T1 – Tumour 2 cm or less in greatest dimension
T2 – Tumour more than 2 cm but not more than 5 cm in greatest dimension
T3 - Tumour more than 5 cm in greatest dimension
T4 – Tumour of any size with direct extension to chest wall or skin

Cervix

FIGO refers to categories accepted by the Federation International de Gynecologie et d'Obstetrique

Stage I [1]	T1	N0	M0	FIGO I (A,B or C) Tumour confined to uterus, no nodal involvement or metastatic spread to distant sites.
Stage II	T2	N0	M0	FIGO II (A,B or C) Tumour invades beyond uterus, no nodal involvement or metastatic spread to distant sites.
Stage III	T3	Any N	M0	FIGO III (A,B or C)
	T1	N1	M0	Tumour extends to pelvic wall, or nodal involvement, but no metastatic spread
	T2	N1	M0	to distant sites.
Stage IV	T4	Any N	M0	FIGO IV
	Any T	Any N	M1	Metastatic spread to distant sites

[1] Includes microinvasive tumours

Ovary

FIGO refers to categories accepted by the Federation International de Gynecologie et d'Obstetrique. (Note: nodal involvement is not usually associated with ovarian cancer)

Stage I [2]	T1	N0	M0	FIGO I (A,B or C) Tumour limited to ovaries, no metastatic spread to distant sites.
Stage II	T2	N0	M0	FIGO II (A,B or C) Ovarian tumour with pelvic extension, no metastatic spread to distant sites.
Stage III	T3	N0	M0	FIGO III (A,B or C)
	Any T	N1	M0	Tumour with spread outside the pelvis, no metastatic spread to distant sites.
Stage IV	Any T	Any N	M1	FIGO IV Metastatic spread to distant sites

[2] Includes borderline malignant tumours

Appendix 3: World Standard Cancer Patient Population.

Percentage of cases in each group

			Age Group						
Cancer (ICD-9)	World standard group used (ICD-9)	Sex	15-44	45-54	55-64	65-74	75-84	85-99	15-99
All malignant neoplasms[1]	140-208	Male	13.7	14.2	21.3	21.9	20.0	9.0	100.0
		Female	16.4	14.9	19.8	20.2	19.4	9.2	100.0
Oesophagus (150)	150	Male	9.1	15.8	24.7	23.5	19.0	7.9	100.0
		Female	13.1	18.0	19.2	21.4	19.5	8.8	100.0
Stomach (151)	151	Male	10.3	15.2	22.1	22.9	20.5	9.0	100.0
		Female	14.8	15.8	15.0	20.1	22.5	11.8	100.0
Colorectal (153 & 154)	153-154	Male	9.5	11.8	18.6	22.9	24.6	12.5	100.0
		Female	8.2	9.8	15.4	21.8	28.3	16.4	100.0
Colon (153)	153-154	Male	9.5	11.8	18.6	22.9	24.6	12.5	100.0
		Female	8.2	9.8	15.4	21.8	28.3	16.4	100.0
Rectum (1540	153-154	Male	9.5	11.8	18.6	22.9	24.6	12.5	100.0
		Female	8.2	9.8	15.4	21.8	28.3	16.4	100.0
Trachea, Bronchus and Lung (162)	162	Male	7.6	13.9	23.7	24.4	21.2	9.2	100.0
		Female	7.9	12.3	20.6	23.6	23.9	11.6	100.0
Malignant Melanoma of the Skin (172)	172	Male	25.5	18.6	19.3	17.1	13.8	5.6	100.0
		Female	25.5	17.1	17.0	17.0	16.2	7.3	100.0
Breast (174)	174	Female	22.2	20.5	19.9	17.2	14.2	5.9	100.0
Cervix Uteri (180)	180	Female	28.3	24.1	20.7	14.5	9.3	3.0	100.0
Corpus Uteri (182)	182	Female	11.1	18.9	27.2	21.6	15.2	5.9	100.0
Ovary (183)	183	Female	23.7	19.5	21.6	17.4	13.0	4.9	100.0
Prostate (185)	185	Male	0.6	2.4	9.5	20.8	38.2	28.5	100.0
Bladder (188)	188	Male	7.6	11.0	18.8	23.6	25.8	13.1	100.0
		Female	10.8	12.3	21.3	22.7	22.3	10.5	100.0
Kidney (189)	189	Male	12.1	15.3	24.9	22.3	18.0	7.4	100.0
		Female	20.7	12.8	17.4	19.4	19.8	9.8	100.0
Non-Hodgkin's Lymphoma (200 & 202)	200-203	Male	29.2	15.6	17.9	17.0	14.5	5.8	100.0
		Female	30.1	12.5	15.1	16.6	17.2	8.4	100.0
Leukaemia (204-208)	204-208	Male	34.3	12.4	14.4	15.9	15.6	7.4	100.0
		Female	16.4	14.9	19.8	20.2	19.4	9.2	100.0

[1]ICD-9 140-208 excluding non-melanoma skin cancer ICD-9 173

Appendix 4: Survival in Northern Ireland Males by Cancer Site and Age Band.

Relative Survival (%) at one, three and five years in male patients aged 15-99 years and diagnosed during 1993-6.

Cancer Site (ICD-9)	Age-group	15-44	45-54	55-64	65-74	75-84	85-99	15-99	15-99[1]
All cancers ex non-melanoma skins (140-208, excluding 173)	No. of cases analysed	825	1026	2209	4127	2965	722	11874	11874
	l year	81	63	58	52	52	42	56	58
	3 years	70	48	41	38	37	35	42	44
	5 years	67	43	35	33	33	28	38	39
Oesophagus (150)	No. of cases analysed	19	39	89	122	78	16	363	363
	l year	37	39	33	31	13	8	28	28
	3 years	-	-	14	14	-	-	12	11
	5 years	-	-	-	13	-	-	9	7
Stomach (151)	No. of cases analysed	22	49	130	244	157	38	640	640
	l year	46	47	50	42	25	19	39	39
	3 years	-	19	28	19	12	-	21	22
	5 years	-	-	23	14	-	-	17	17
Colorectal (153+154)	No. of cases analysed	50	171	382	689	480	114	1886	1886
	l year	84	76	77	73	68	51	72	71
	3 years	68	58	56	54	53	40	55	54
	5 years	65	55	48	48	47	32	49	48
Colon (153)	No. of cases analysed	31	91	229	432	306	87	1176	1176
	l year	81	76	74	70	71	53	71	71
	3 years	71	56	56	52	57	36	54	54
	5 years	72	53	48	46	50	-	49	50
Rectum (154)	No. of cases analysed	19	80	153	257	174	27	710	710
	l year	90	75	82	77	62	46	74	71
	3 years	63	61	55	59	44	-	55	54
	5 years	-	57	47	50	42	-	49	45
Trachea, Bronchus and Lung (162)	No. of cases analysed	36	167	468	900	513	102	2186	2186
	l year	33	33	28	21	20	7	23	24
	3 years	28	15	12	9	7	-	10	11
	5 years	-	13	10	7	5	-	8	9
Malignant Melanoma of the Skin (172)	No. of cases analysed	79	44	57	53	32	10	275	275
	l year	96	100	96	94	97	99	97	97
	3 years	89	92	90	90	87	-	90	89
	5 years	89	91	87	87	72	-	87	81

[1] These rates are directly age-standardised to the 'World Standard Cancer Patient Population' (See Appendix 3)

- Relative survival rates not computed as less than 10 cases entering this interval

Cancer Site (ICD-9)	Age-group	15-44	45-54	55-64	65-74	75-84	85-99	15-99	15-99[1]
Prostate (185)	No. of cases analysed	4	38	205	644	702	197	1790	1790
	1 year	-	85	90	88	80	63	82	78
	3 years	-	62	73	72	61	54	67	62
	5 years	-	47	64	62	53	46	58	53
Bladder (188)	No. of cases analysed	17	37	109	227	177	48	615	615
	1 year	77	87	86	82	68	64	78	77
	3 years	77	80	79	69	49	40	66	64
	5 years	71	78	66	63	55	-	63	61
Kidney (189)	No. of cases analysed	24	55	91	151	72	19	412	412
	1 year	83	79	69	64	66	58	69	70
	3 years	71	70	54	58	53	-	59	60
	5 years	71	68	42	50	55	-	53	52
Non Hodgkin's Lymphoma (200+202)	No. of cases analysed	75	74	85	128	85	16	463	463
	1 year	83	72	73	52	59	61	66	69
	3 years	72	60	57	42	45	-	55	59
	5 years	67	54	52	37	32	-	49	54
Leukaemia (204-208)	No. of cases analysed	47	19	41	78	79	21	285	285
	1 year	75	74	64	45	47	30	55	61
	3 years	49	43	49	28	31	-	37	40
	5 years	40	-	35	17	33	-	29	30

[1] These rates are directly age-standardised to the 'World Standard Cancer Patient Population' (See Appendix 3)
- Relative survival rates not computed as less than 10 cases entering this interval

Appendix 5: Survival in Northern Ireland Females by Cancer Site and Age Band.

Relative Survival (%) at one, three and five years in female patients aged 15-99 years and diagnosed during 1993-6.

Cancer Site (ICD-9)	Age-group	15-44	45-54	55-64	65-74	75-84	85-99	15-99	15-99[1]
All cancers ex non-melanoma skins (140-208, excluding 173)	No. of cases analysed	1274	1710	2435	3189	2725	976	12309	12309
	l year	91	82	73	59	51	40	66	67
	3 years	80	70	59	46	38	32	54	55
	5 years	76	65	55	41	36	34	51	52
Oesophagus (150)	No. of cases analysed	3	9	32	66	74	31	215	215
	l year	-	-	54	30	29	19	33	45
	3 years	-	-	-	21	10	-	19	31
	5 years	-	-	-	-	-	-	19	31
Stomach (151)	No. of cases analysed	15	26	60	95	138	46	380	380
	l year	47	42	40	40	26	26	34	37
	3 years	-	-	22	26	12	-	20	22
	5 years	-	-	-	24	10	-	19	19
Colorectal (153+154)	No. of cases analysed	67	146	307	485	555	215	1775	1775
	l year	85	82	76	76	62	55	70	70
	3 years	57	60	58	59	46	47	54	53
	5 years	57	52	50	55	42	48	50	49
Colon (153)	No. of cases analysed	38	105	213	351	381	146	1234	1234
	l year	84	81	74	74	62	52	69	68
	3 years	63	59	56	61	48	51	55	55
	5 years	64	49	52	55	42	56	51	51
Rectum (154)	No. of cases analysed	29	41	94	134	174	69	541	541
	l year	86	86	80	80	63	62	74	73
	3 years	48	64	62	55	43	38	51	50
	5 years	49	62	47	55	41	-	48	46
Trachea, Bronchus and Lung (162)	No. of cases analysed	25	113	247	472	263	58	1178	1178
	l year	28	29	28	29	20	2	26	24
	3 years	-	13	12	14	10	-	12	11
	5 years	-	11	9	12	9	-	10	9
Malignant Melanoma of the Skin (172)	No. of cases analysed	163	58	72	68	50	34	445	445
	l year	99	93	99	101	92	90	97	97
	3 years	100	87	90	89	87	76	92	90
	5 years	99	83	88	89	83	-	92	90

[1] These rates are directly age-standardised to the 'World Standard Cancer Patient Population' (See Appendix 3)

- Relative survival rates not computed as less than 10 cases entering this interval

Cancer Site (ICD-9)	Age-group	15-44	45-54	55-64	65-74	75-84	85-99	15-99	15-99[1]
Breast (174)	No. of cases analysed	403	780	796	604	490	171	3244	3244
	l year	97	96	96	91	84	70	92	92
	3 years	82	88	86	79	73	59	82	81
	5 years	77	83	81	72	72	65	78	77
Cervix Uteri (180)	No. of cases analysed	133	70	51	42	21	9	326	326
	l year	93	86	81	63	55	-	83	80
	3 years	84	72	64	46	-	-	70	65
	5 years	80	66	57	43	-	-	64	59
Ovary (183)	No. of cases analysed	39	70	105	118	74	21	427	427
	l year	80	72	64	54	33	11	57	61
	3 years	64	43	36	20	18	-	32	37
	5 years	55	37	26	19	-	-	27	32
Bladder (188)	No. of cases analysed	10	14	34	95	85	32	270	270
	l year	80	79	80	66	54	48	63	68
	3 years	-	65	82	51	36	-	50	54
	5 years	-	-	79	42	24	-	43	47
Kidney (189)	No. of cases analysed	15	26	51	80	55	11	238	238
	l year	100	69	69	67	66	52	69	73
	3 years	87	58	61	55	40	-	56	59
	5 years	79	47	59	46	44	-	51	57
Non Hodgkin's Lymphoma (200+202)	No. of cases analysed	36	46	81	138	104	28	433	433
	l year	92	92	70	62	52	46	66	73
	3 years	81	81	53	48	41	-	54	61
	5 years	77	68	53	46	36	-	51	56
Leukaemia (204-208)	No. of cases analysed	31	19	33	49	43	24	199	199
	l year	58	53	43	42	54	49	49	49
	3 years	42	-	25	42	43	-	38	38
	5 years	-	-	-	32	-	-	33	33

[1] These rates are directly age-standardised to the 'World Standard Cancer Patient Population' (See Appendix 3)

- Relative survival rates not computed as less than 10 cases entering this interval

Appendix 6: Incidence Rates (1993-1996) in Northern Ireland by Cancer Site and Gender

Incident cases, crude rates, cumulative risk and age-standardised rates for patients diagnosed 93-96

	Males				Females			
	1993	1994	1995	1996	1993	1994	1995	1996
Oesophagus (150)								
Incidence Cases	88	100	100	91	56	53	58	64
Crude Rate per 100,000	11.0	12.5	12.4	11.1	6.7	6.3	6.9	7.5
Cumulative Risk (0-74yrs) (%)	1.1	1.1	1.2	0.9	0.3	0.4	0.4	0.5
WASR[1] per 100,000	8.5	9.6	10.1	8.0	3.5	3.0	3.5	3.6
WASR 95% Lower	6.6	7.7	8.1	6.3	2.4	2.1	2.5	2.6
WASR 95% Upper	10.3	11.5	12.1	9.7	4.5	4.0	4.5	4.6
EASR[2] per 100,000	12.5	14.3	14.3	12.0	5.3	4.8	5.4	5.7
EASR 95% Lower	9.8	11.5	11.4	9.5	3.9	3.4	3.9	4.2
EASR 95% Upper	15.1	17.2	17.1	14.5	6.8	6.1	6.9	7.2
% of all cancers	2.1	2.3	2.4	2.1	1.3	1.2	1.3	1.4
Stomach (151)								
Incidence Cases	156	184	159	168	109	98	85	117
Crude Rate per 100,000	19.6	22.9	19.7	20.6	13.1	11.7	10.1	13.7
Cumulative Risk (0-74yrs) (%)	1.9	2.2	1.6	1.7	0.7	0.6	0.6	0.8
WASR[1] per 100,000	15.1	17.0	14.7	14.8	6.5	6.0	5.8	7.1
WASR 95% Lower	12.6	14.4	12.4	12.5	5.1	4.6	4.4	5.6
WASR 95% Upper	17.5	19.5	17.1	17.1	7.9	7.3	7.2	8.6
EASR[2] per 100,000	22.2	25.4	22.4	22.5	10.1	9.3	8.4	10.6
EASR 95% Lower	18.7	21.7	18.9	19.1	8.1	7.3	6.5	8.6
EASR 95% Upper	25.8	29.1	26.0	26.0	12.2	11.2	10.3	12.7
% of all cancers	3.7	4.3	3.8	3.9	2.5	2.3	2.0	2.6
Colon (153)								
Incidence Cases	293	308	313	313	322	314	349	318
Crude Rate per 100,000	36.8	38.4	38.9	38.3	38.6	37.4	41.4	37.3
Cumulative Risk (0-74yrs) (%)	3.0	3.4	3.1	3.2	2.4	2.4	2.4	2.4
WASR[1] per 100,000	27.2	28.6	28.1	28.3	21.0	20.9	22.5	20.6
WASR 95% Lower	24.0	25.3	24.9	25.1	18.4	18.3	19.8	18.1
WASR 95% Upper	30.4	31.9	31.3	31.6	23.5	23.5	25.1	23.2
EASR[2] per 100,000	42.0	43.5	44.1	42.4	31.8	31.6	33.9	30.7
EASR 95% Lower	37.1	38.5	39.1	37.7	28.1	27.9	30.1	27.2
EASR 95% Upper	46.9	48.4	49.1	47.2	35.4	35.3	37.7	34.3
% of all cancers	7.0	7.2	7.6	7.3	7.3	7.3	8.1	7.0
Rectum (154)								
Incidence Cases	186	179	167	183	128	123	149	153
Crude Rate per 100,000	23.3	22.3	20.7	22.4	15.3	14.6	17.7	17.9
Cumulative Risk (0-74yrs) (%)	2.2	2.1	1.8	2.1	0.9	0.8	1.0	1.2
WASR[1] per 100,000	18.0	16.7	15.5	16.6	8.7	7.9	9.9	10.0
WASR 95% Lower	15.4	14.2	13.1	14.1	7.0	6.4	8.1	8.2
WASR 95% Upper	20.7	19.2	18.0	19.1	10.5	9.5	11.7	11.7
EASR[2] per 100,000	26.4	24.8	23.3	24.4	13.0	12.1	14.8	14.8
EASR 95% Lower	22.5	21.2	19.7	20.8	10.6	9.8	12.3	12.3
EASR 95% Upper	30.2	28.5	26.8	28.0	15.4	14.3	17.4	17.3
% of all cancers	4.4	4.2	4.0	4.3	2.9	2.9	3.4	3.4

[1]WASR – World Age Standardised Rate
[2]EASR – European Age Standardised Rate

	Males				Females			
	1993	1994	1995	1996	1993	1994	1995	1996
Colorectal(153 & 154)								
Incidence Cases	479	487	480	496	450	437	498	471
Crude Rate per 100,000	60.1	60.7	59.6	60.8	53.9	52.0	59.0	55.2
Cumulative Risk (0-74yrs) (%)	5.1	5.4	4.8	5.2	3.3	3.2	3.4	3.5
WASR[1] per 100,000	45.2	45.3	43.6	44.9	29.7	28.8	32.4	30.6
WASR 95% Lower	41.0	41.2	39.6	40.8	26.7	25.8	29.2	27.5
WASR 95% Upper	49.4	49.5	47.7	49.0	32.8	31.9	35.6	33.7
EASR[2] per 100,000	68.4	68.3	67.3	66.8	44.8	43.7	48.7	45.5
EASR 95% Lower	62.2	62.1	61.2	60.9	40.4	39.3	44.2	41.2
EASR 95% Upper	74.6	74.5	73.5	72.8	49.2	48.0	53.3	49.9
% of all cancers	11.4	11.4	11.6	11.5	10.3	10.2	11.5	10.4
Lung (162)								
Incidence Cases	574	626	547	563	320	314	321	311
Crude Rate per 100,000	72.0	78.1	67.9	69.0	38.3	37.4	38.0	36.5
Cumulative Risk (0-74yrs) (%)	6.6	7.3	6.2	6.4	3.3	3.0	3.0	2.9
WASR[1] per 100,000	53.7	60.3	50.0	49.6	24.3	23.0	23.0	22.4
WASR 95% Lower	49.2	55.5	45.6	45.3	21.4	20.2	20.2	19.7
WASR 95% Upper	58.3	65.2	54.3	53.8	27.1	25.8	25.7	25.1
EASR[2] per 100,000	80.6	89.5	75.2	74.7	34.7	33.1	33.6	32.6
EASR 95% Lower	73.9	82.4	68.8	68.5	30.8	29.2	29.8	28.8
EASR 95% Upper	87.3	96.6	81.5	80.9	38.7	36.9	37.5	36.4
% of all cancers	13.7	14.7	13.2	13.1	7.3	7.3	7.4	6.9
Malignant Melanoma (172)								
Incidence Cases	63	67	76	71	124	112	101	110
Crude Rate per 100,000	7.9	8.4	9.4	8.7	14.8	13.3	12.0	12.9
Cumulative Risk (0-74yrs) (%)	0.7	0.7	0.8	0.8	1.0	0.9	0.9	1.1
WASR[1] per 100,000	6.8	7.1	7.6	7.5	11.7	10.3	9.1	10.1
WASR 95% Lower	5.1	5.4	5.9	5.7	9.5	8.2	7.2	8.1
WASR 95% Upper	8.5	8.9	9.4	9.3	13.9	12.3	11.0	12.1
EASR[2] per 100,000	9.2	9.1	10.6	9.7	14.1	12.9	11.5	12.7
EASR 95% Lower	6.9	6.9	8.2	7.4	11.6	10.4	9.2	10.2
EASR 95% Upper	11.5	11.3	13.0	11.9	16.7	15.4	13.8	15.1
% of all cancers	1.5	1.6	1.8	1.7	2.8	2.6	2.3	2.4
Non Melanoma Skin (173)								
Incidence Cases	1035	1150	1083	1136	1150	1127	1100	1198
Crude Rate per 100,000	129.9	143.4	134.5	139.1	137.7	134.2	130.4	140.5
Cumulative Risk (0-74yrs) (%)	10.1	11.1	10.7	10.8	8.2	7.6	7.7	7.7
WASR[1] per 100,000	96.8	107.0	100.8	101.4	76.6	74.7	71.5	74.8
WASR 95% Lower	90.7	100.6	94.6	95.3	71.6	69.8	66.7	70.0
WASR 95% Upper	102.8	113.4	106.9	107.6	81.5	79.6	76.2	79.6
EASR[2] per 100,000	147.5	163.4	152.5	152.5	114.2	111.0	107.0	112.6
EASR 95% Lower	138.4	153.8	143.3	143.5	107.3	104.1	100.3	105.8
EASR 95% Upper	156.7	173.0	161.8	161.4	121.2	117.8	113.6	119.4
% of all cancers	24.6	26.9	26.2	26.4	26.2	26.4	25.5	26.5

[1]WASR – World Age Standardised Rate
[2]EASR – European Age Standardised Rate

	Males				Females			
	1993	1994	1995	1996	1993	1994	1995	1996
Breast (174 & 175)								
Incidence Cases	8	6	11	8	768	812	863	868
Crude Rate per 100,000	1.0	0.7	1.4	1.0	92.0	96.7	102.3	101.8
Cumulative Risk (0-74yrs) (%)	0.1	0.1	0.1	0.1	7.2	7.5	8.0	7.9
WASR[1] per 100,000	0.8	0.6	0.9	0.7	68.0	72.3	74.9	75.2
WASR 95% Lower	0.2	0.1	0.3	0.2	62.9	67.0	69.6	69.8
WASR 95% Upper	1.4	1.0	1.4	1.1	73.1	77.6	80.3	80.5
EASR[2] per 100,000	1.2	1.0	1.4	1.0	93.5	99.3	103.3	102.5
EASR 95% Lower	0.3	0.2	0.6	0.3	86.6	92.2	96.1	95.4
EASR 95% Upper	2.0	1.7	2.2	1.8	100.4	106.4	110.4	109.6
% of all cancers	0.2	0.1	0.3	0.2	17.5	19.0	20.0	19.2
Cervix Uteri (180)								
Incidence Cases					84	76	82	91
Crude Rate per 100,000					10.1	9.0	9.7	10.7
Cumulative Risk (0-74yrs) (%)					0.8	0.7	0.9	0.9
WASR[1] per 100,000					8.1	7.5	8.3	8.9
WASR 95% Lower					6.3	5.7	6.5	7.0
WASR 95% Upper					9.9	9.2	10.2	10.8
EASR[2] per 100,000					10.5	9.2	10.5	11.0
EASR 95% Lower					8.2	7.1	8.2	8.7
EASR 95% Upper					12.8	11.3	12.8	13.4
% of all cancers					1.9	1.8	1.9	2.0
Ovary (183)								
Incidence Cases					106	115	116	111
Crude Rate per 100,000					12.7	13.7	13.7	13.0
Cumulative Risk (0-74yrs) (%)					1.0	1.1	1.2	1.1
WASR[1] per 100,000					8.8	9.8	9.9	8.7
WASR 95% Lower					7.0	7.9	8.0	7.0
WASR 95% Upper					10.6	11.7	11.8	10.5
EASR[2] per 100,000					12.1	13.5	13.8	12.3
EASR 95% Lower					9.7	10.9	11.2	9.9
EASR 95% Upper					14.5	16.0	16.4	14.7
% of all cancers					2.4	2.7	2.7	2.5
Prostate (185)								
Incidence Cases	467	456	476	468				
Crude Rate per 100,000	58.6	56.9	59.1	57.3				
Cumulative Risk (0-74yrs) (%)	3.8	4.0	3.8	4.1				
WASR[1] per 100,000	39.9	38.1	39.1	37.8				
WASR 95% Lower	36.1	34.5	35.4	34.3				
WASR 95% Upper	43.6	41.7	42.7	41.4				
EASR[2] per 100,000	65.9	62.9	65.8	61.3				
EASR 95% Lower	59.8	56.9	59.8	55.7				
EASR 95% Upper	72.0	68.8	71.9	66.9				
% of all cancers	11.1	10.7	11.5	10.9				

[1]WASR – World Age Standardised Rate
[2]EASR – European Age Standardised Rate

	Males				Females			
	1993	1994	1995	1996	1993	1994	1995	1996
Bladder (188)								
Incidence Cases	152	136	150	188	54	61	72	91
Crude Rate per 100,000	19.1	17.0	18.6	23.0	6.5	7.3	8.5	10.7
Cumulative Risk (0-74yrs) (%)	1.7	1.4	1.5	1.9	0.4	0.4	0.6	0.7
WASR[1] per 100,000	14.2	12.4	13.3	15.8	3.3	3.4	4.8	5.7
WASR 95% Lower	11.9	10.3	11.1	13.4	2.3	2.4	3.6	4.4
WASR 95% Upper	16.5	14.6	15.5	18.1	4.3	4.3	6.0	7.0
EASR[1] per 100,000	21.8	19.3	20.5	24.7	5.1	5.3	7.0	8.6
EASR 95% Lower	18.2	16.0	17.2	21.1	3.7	3.9	5.3	6.7
EASR 95% Upper	25.4	22.6	23.9	28.3	6.5	6.8	8.7	10.5
% of all cancers	3.6	3.2	3.6	4.4	1.2	1.4	1.7	2.0
Kidney (189)								
Incidence Cases	113	125	100	94	72	47	68	60
Crude Rate per 100,000	14.2	15.6	12.4	11.5	8.6	5.6	8.1	7.0
Cumulative Risk (0-74yrs) (%)	1.4	1.5	1.2	1.0	0.7	0.4	0.7	0.5
WASR[1] per 100,000	11.0	12.4	9.9	9.1	6.0	3.5	5.4	4.4
WASR 95% Lower	8.9	10.2	7.9	7.2	4.5	2.4	4.0	3.2
WASR 95% Upper	13.1	14.7	11.9	11.0	7.5	4.6	6.7	5.7
EASR[2] per 100,000	15.8	17.7	14.0	12.9	8.1	5.0	7.6	6.2
EASR 95% Lower	12.8	14.6	11.2	10.3	6.2	3.5	5.7	4.5
EASR 95% Upper	18.7	20.9	16.8	15.5	10.1	6.5	9.5	7.9
% of all cancers	2.7	2.9	2.4	2.2	1.6	1.1	1.6	1.3
Non-Hodgkin's Lymphoma (200 & 202)								
Incidence Cases	134	109	121	122	106	114	95	135
Crude Rate per 100,000	16.8	13.6	15.0	14.9	12.7	13.6	11.3	15.8
Cumulative Risk (0-74yrs) (%)	1.4	1.2	1.3	1.4	0.9	1.1	0.9	1.2
WASR[1] per 100,000	13.6	11.1	12.1	11.8	8.3	8.9	6.9	9.9
WASR 95% Lower	11.2	8.9	9.9	9.6	6.6	7.1	5.4	8.1
WASR 95% Upper	16.0	13.2	14.3	14.0	10.1	10.7	8.4	11.7
EASR[2] per 100,000	18.6	15.1	17.0	16.1	11.5	12.6	9.9	13.8
EASR 95% Lower	15.4	12.2	13.9	13.2	9.2	10.2	7.8	11.4
EASR 95% Upper	21.7	18.0	20.1	19.0	13.8	15.0	12.0	16.3
% of all cancers	3.2	2.6	2.9	2.8	2.4	2.7	2.2	3.0
All Leukaemias (204 to 208)								
Incidence Cases	91	95	89	66	63	48	73	60
Crude Rate per 100,000	11.4	11.8	11.1	8.1	7.5	5.7	8.7	7.0
Cumulative Risk (0-74yrs) (%)	0.9	0.8	0.7	0.5	0.5	0.3	0.6	0.5
WASR[1] per 100,000	9.5	10.2	8.8	6.4	5.9	4.4	6.0	5.6
WASR 95% Lower	7.5	8.1	6.9	4.7	4.3	2.9	4.4	3.9
WASR 95% Upper	11.6	12.4	10.8	8.0	7.6	5.9	7.6	7.2
EASR[2] per 100,000	12.3	12.7	11.8	8.5	7.0	4.8	7.5	6.3
EASR 95% Lower	9.7	10.1	9.3	6.4	5.2	3.4	5.7	4.7
EASR 95% Upper	14.9	15.3	14.3	10.5	8.8	6.3	9.4	8.0
% of all cancers	2.2	2.2	2.2	1.5	1.4	1.1	1.7	1.3

[1]WASR – World Age Standardised Rate
[2]EASR – European Age Standardised Rate

	Males				Females			
	1993	1994	1995	1996	1993	1994	1995	1996
ALL CANCERS (140 - 208) excl. NMS (173)								
Incidence Cases	3166	3122	3049	3167	3235	3146	3220	3325
Crude Rate per 100,000	397.4	389.4	378.7	387.9	387.4	374.5	381.6	389.9
Cumulative Risk (0-74yrs) (%)	29.1	28.8	27.2	28.4	24.3	23.8	24.7	24.8
WASR[1] per 100,000	301.2	295.5	284.2	285.9	253.6	246.2	250.2	251.0
WASR 95% Lower	290.4	284.9	273.9	275.6	244.0	236.7	240.8	241.7
WASR 95% Upper	312.0	306.1	294.6	296.1	263.2	255.6	259.6	260.4
EASR[2] per 100,000	446.0	436.7	422.8	420.5	353.7	343.8	350.7	351.2
EASR 95% Lower	430.4	421.3	407.6	405.8	340.9	331.2	338.1	338.7
EASR 95% Upper	461.7	452.2	437.9	435.2	366.4	356.3	363.4	363.7
% of all cancers	75.4	73.1	73.8	73.6	73.8	73.6	74.5	73.5
ALL CANCERS (140-208)								
Incidence Cases	4201	4272	4132	4303	4385	4273	4320	4523
Crude Rate per 100,000	527.3	532.8	513.2	527.1	525.1	508.7	512.0	530.4
Cumulative Risk (0-74yrs) (%)	36.3	36.7	35.0	36.1	30.6	29.5	30.5	30.6
WASR[1] per 100,000	398.0	402.5	385.0	387.3	330.1	320.8	321.7	325.9
WASR 95% Lower	385.6	390.2	373.0	375.4	319.4	310.2	311.1	315.4
WASR 95% Upper	410.3	414.8	397.0	399.2	340.9	331.4	332.2	336.4
EASR[2] per 100,000	593.6	600.1	575.3	573.0	467.9	454.7	457.7	463.8
EASR 95% Lower	575.5	582.0	557.6	555.9	453.4	440.5	443.4	449.6
EASR 95% Upper	611.6	618.2	592.9	590.1	482.4	469.0	471.9	478.0
% of all cancers	100	100	100	100	100	100	100	100

[1]WASR – World Age Standardised Rate
[2]EASR – European Age Standardised Rate

Appendix 7: Mortality Rates (1993-1999) in Northern Ireland by Cancer Site and Gender

Number of deaths, crude rates, cumulative risk and age-standardised rates for patients dying 93-99

	Males							Females						
Oesophagus (150)	1993	1994	1995	1996	1997	1998	1999	1993	1994	1995	1996	1997	1998	1999
Number of deaths	75	87	72	91	91	91	98	49	58	47	51	56	60	60
Crude Rate per 100,000	9.4	10.9	8.9	11.1	11.1	11.0	11.8	5.9	6.9	5.6	6.0	6.5	7.0	7.0
Cum. Risk (0-74yrs)(%)[1]	0.8	1.0	0.8	1.0	1.0	0.9	1.0	0.3	0.4	0.3	0.3	0.3	0.3	0.4
WASR per 100,000 [2]	7.1	8.1	6.5	8.3	8.4	8.1	8.5	2.7	3.5	2.6	2.8	3.0	3.1	3.2
WASR 95% Lower	5.5	6.4	4.9	6.6	6.6	6.3	6.8	1.9	2.5	1.8	1.9	2.1	2.2	2.3
WASR 95% Upper	8.8	9.9	8.2	10.1	10.1	9.8	10.2	3.5	4.5	3.5	3.7	3.9	4.1	4.1
EASR per 100,000 [3]	11.0	12.2	9.6	12.4	12.3	12.1	12.8	4.4	5.3	4.2	4.4	4.7	5.1	5.1
EASR 95% Lower	8.4	9.6	7.4	9.8	9.7	9.6	10.2	3.1	3.9	2.9	3.1	3.4	3.7	3.7
EASR 95% Upper	13.5	14.8	11.9	15.0	14.8	14.6	15.4	5.7	6.8	5.4	5.7	6.0	6.5	6.4
% of all cancers	4.0	4.7	3.9	5.0	4.9	4.7	5.7	2.8	3.3	2.9	3.1	3.2	3.5	3.5

Stomach (151)	1993	1994	1995	1996	1997	1998	1999	1993	1994	1995	1996	1997	1998	1999
Number of deaths	126	129	97	110	101	119	113	67	69	72	85	68	96	72
Crude Rate per 100,000	15.8	16.1	12.0	13.5	12.3	14.4	13.6	8.0	8.2	8.5	10.0	7.9	11.1	8.3
Cum. Risk (0-74yrs)(%)[1]	1.4	1.4	1.0	1.1	1.0	1.2	1.1	0.4	0.4	0.4	0.5	0.3	0.6	0.3
WASR per 100,000 [2]	11.4	12.0	8.7	9.5	8.7	10.6	9.2	3.7	4.0	4.1	5.0	3.2	5.0	3.7
WASR 95% Lower	9.4	9.8	6.9	7.6	6.9	8.6	7.4	2.7	3.0	3.0	3.8	2.3	3.9	2.7
WASR 95% Upper	13.5	14.1	10.6	11.3	10.4	12.5	10.9	4.7	5.1	5.1	6.2	4.0	6.1	4.7
EASR per 100,000 [3]	17.6	18.6	13.5	14.8	13.4	15.8	14.4	6.0	6.4	6.5	7.6	5.2	7.9	5.9
EASR 95% Lower	14.5	15.3	10.8	12.0	10.7	13.0	11.7	4.5	4.8	4.9	5.9	3.9	6.3	4.5
EASR 95% Upper	20.8	21.9	16.2	17.6	16.0	18.7	17.1	7.5	8.0	8.1	9.4	6.5	9.6	7.4
% of all cancers	6.7	7.0	5.3	6.0	5.5	6.2	6.5	3.9	4.0	4.4	5.1	3.9	5.5	4.2

Colon (153)	1993	1994	1995	1996	1997	1998	1999	1993	1994	1995	1996	1997	1998	1999
Number of deaths	169	156	181	150	138	178	133	180	166	171	146	171	156	158
Crude Rate per 100,000	21.2	19.5	22.5	18.4	16.8	21.5	16.1	21.6	19.8	20.3	17.1	19.9	18.1	18.3
Cum. Risk (0-74yrs)(%)[1]	1.6	1.5	1.6	1.4	1.2	1.5	1.2	1.1	1.1	1.0	0.9	1.0	0.9	0.9
WASR per 100,000 [2]	15.5	14.5	16.1	12.7	11.2	14.4	11.0	10.6	10.3	10.3	8.5	9.5	8.1	8.1
WASR 95% Lower	13.1	12.1	13.7	10.6	9.2	12.2	9.0	8.9	8.5	8.6	6.9	7.9	6.7	6.7
WASR 95% Upper	17.9	16.8	18.2	14.9	13.1	16.6	12.9	12.3	12.0	12.1	10.1	11.2	9.6	9.6
EASR per 100,000 [3]	24.3	22.2	25.6	20.0	17.8	22.8	17.2	16.6	15.8	15.9	13.0	14.9	13.0	12.9
EASR 95% Lower	20.5	18.7	21.8	16.7	14.8	19.4	14.3	14.1	13.3	13.3	10.8	12.5	10.8	10.8
EASR 95% Upper	28.0	25.8	29.4	23.2	20.8	26.2	20.2	19.2	18.4	18.4	15.3	17.3	15.2	15.0
% of all cancers	9.0	8.4	9.9	8.2	7.5	9.3	7.7	10.4	9.6	10.5	8.8	9.8	9.0	9.2

Rectum (154)	1993	1994	1995	1996	1997	1998	1999	1993	1994	1995	1996	1997	1998	1999
Number of deaths	68	60	53	63	53	65	64	54	57	44	51	49	49	40
Crude Rate per 100,000	8.5	7.5	6.6	7.7	6.4	7.9	7.7	6.5	6.8	5.2	6.0	5.7	5.7	4.6
Cum. Risk (0-74yrs)(%)[1]	0.7	0.6	0.5	0.6	0.4	0.6	0.5	0.3	0.3	0.3	0.3	0.3	0.4	0.2
WASR per 100,000 [2]	6.5	5.7	4.6	5.5	4.4	5.5	5.1	2.9	3.2	2.7	3.0	3.1	3.2	2.2
WASR 95% Lower	4.9	4.2	3.3	4.1	3.2	4.1	3.8	2.0	2.2	1.8	2.1	2.1	2.2	1.4
WASR 95% Upper	8.1	7.2	6.0	6.9	5.7	6.9	6.4	3.8	4.1	3.6	4.0	4.1	4.2	2.9
EASR per 100,000 [3]	10.1	8.6	7.3	8.5	6.9	8.4	8.0	4.7	5.1	4.2	4.6	4.6	4.6	3.4
EASR 95% Lower	7.6	6.4	5.3	6.3	5.0	6.4	6.0	3.4	3.7	2.9	3.3	3.2	3.3	2.3
EASR 95% Upper	12.6	10.9	9.3	10.6	8.8	10.5	10.0	6.1	6.5	5.5	5.9	6.0	6.0	4.6
% of all cancers	3.6	3.2	2.9	3.4	2.9	3.4	3.7	3.1	3.3	2.7	3.1	2.8	2.8	2.3

[1] Percentage of Cumulative Risk (0-74 years)
[2] World Age-Standardised Rate
[3] European Age-Standardised Rate

	Males							Females						
Colorectal Cancer (153 & 154)	1993	1994	1995	1996	1997	1998	1999	1993	1994	1995	1996	1997	1998	1999
Number of deaths	237	216	234	213	191	243	197	234	223	215	197	220	205	198
Crude Rate per 100,000	29.7	26.9	29.1	26.1	23.2	29.4	23.8	28.0	26.5	25.5	23.1	25.7	23.8	22.9
Cum. Risk (0-74yrs)(%)[1]	2.3	2.1	2.1	2.0	1.6	2.1	1.7	1.5	1.4	1.3	1.2	1.3	1.3	1.1
WASR per 100,000 [2]	22.0	20.2	20.7	18.2	15.6	19.9	16.1	13.5	13.4	13.0	11.5	12.7	11.3	10.3
WASR 95% Lower	19.1	17.4	18.0	15.7	13.3	17.3	13.7	11.6	11.5	11.0	9.7	10.7	9.5	8.7
WASR 95% Upper	24.9	23.0	23.3	20.8	17.9	22.5	18.4	15.4	15.4	15.0	13.3	14.6	13.0	12.0
EASR per 100,000 [3]	34.4	30.9	32.9	28.4	24.8	31.3	25.2	21.4	20.9	20.1	17.7	19.5	17.6	16.3
EASR 95% Lower	29.9	26.7	28.6	24.5	21.2	27.3	21.7	18.5	18.0	17.2	15.0	16.8	15.0	13.9
EASR 95% Upper	38.9	35.1	37.2	32.3	28.3	35.3	28.8	24.3	23.8	22.9	20.3	22.3	20.2	18.8
% of all cancers	12.6	11.6	12.8	11.6	10.4	12.6	11.4	13.5	12.8	13.2	11.9	12.6	11.8	11.6

Lung (162)	1993	1994	1995	1996	1997	1998	1999	1993	1994	1995	1996	1997	1998	1999
Number of deaths	539	518	489	505	500	487	449	266	261	266	274	275	301	293
Crude Rate per 100,000	67.7	64.6	60.7	61.9	60.8	58.9	54.2	31.9	31.1	31.5	32.1	32.1	35.0	33.9
Cum. Risk (0-74yrs)(%)[1]	6.1	5.8	5.4	5.4	5.3	5.0	4.7	2.8	2.2	2.4	2.3	2.3	2.7	2.1
WASR per 100,000 [2]	50.0	48.0	44.2	43.7	42.9	40.1	37.5	20.0	17.4	19.1	18.5	17.9	19.5	18.3
WASR 95% Lower	45.6	43.8	40.2	39.7	39.0	36.4	33.9	17.4	15.1	16.6	16.1	15.6	17.1	15.9
WASR 95% Upper	54.3	52.3	48.2	47.6	46.8	43.8	41.1	22.5	19.7	21.6	20.9	20.2	21.9	20.6
EASR per 100,000 [3]	75.6	72.9	67.0	66.6	65.4	61.8	57.3	28.5	25.9	27.8	27.4	26.6	28.8	27.4
EASR 95% Lower	69.1	66.5	60.9	60.7	59.7	56.2	52.0	25.0	22.6	24.3	24.0	23.3	25.4	24.1
EASR 95% Upper	82.1	79.3	73.0	72.5	71.2	67.3	62.6	32.1	29.2	31.3	30.9	29.9	32.2	30.7
% of all cancers	28.7	27.9	26.7	27.5	27.1	25.4	26.0	15.4	15.0	16.3	16.5	15.8	17.4	17.1

Melanoma (172)	1993	1994	1995	1996	1997	1998	1999	1993	1994	1995	1996	1997	1998	1999
Number of deaths	7	14	9	10	12	13	15	20	21	16	16	14	16	17
Crude Rate per 100,000	0.9	1.7	1.1	1.2	1.5	1.6	1.8	2.4	2.5	1.9	1.9	1.6	1.9	2.0
Cum. Risk (0-74yrs)(%)[1]	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1
WASR per 100,000 [2]	0.7	1.4	0.9	1.0	1.0	1.1	1.3	1.6	1.7	1.1	1.0	1.1	1.0	1.1
WASR 95% Lower	0.2	0.6	0.3	0.4	0.4	0.5	0.6	0.8	0.9	0.5	0.5	0.5	0.4	0.5
WASR 95% Upper	1.2	2.2	1.5	1.7	1.7	1.7	1.9	2.3	2.1	1.6	1.6	1.7	1.5	1.7
EASR per 100,000 [3]	1.0	2.1	1.2	1.5	1.6	1.7	1.9	2.2	2.3	1.5	1.4	1.5	1.4	1.7
EASR 95% Lower	0.2	1.0	0.4	0.5	0.7	0.8	0.9	1.2	1.3	0.7	0.7	0.7	0.7	0.8
EASR 95% Upper	1.7	3.2	2.0	2.4	2.5	2.7	2.9	3.1	3.4	2.3	2.2	2.3	2.1	2.5
% of all cancers	0.4	0.8	0.5	0.5	0.7	0.7	0.9	1.2	1.2	1.0	1.0	0.8	0.9	1.0

Breast (174)								1993	1994	1995	1996	1997	1998	1999
Number of deaths								326	334	325	299	258	297	282
Crude Rate per 100,000								39.0	39.8	38.5	35.1	30.1	34.5	32.7
Cum. Risk (0-74yrs)(%)[1]								3.0	2.8	2.8	2.5	2.0	2.4	2.2
WASR per 100,000 [2]								27.0	26.1	25.4	22.1	18.7	21.7	20.4
WASR 95% Lower								23.8	23.0	22.4	19.4	16.1	19.0	17.7
WASR 95% Upper								30.2	29.2	28.4	24.9	21.2	24.4	23.0
EASR per 100,000 [3]								38.0	37.2	35.8	31.4	26.8	31.1	28.9
EASR 95% Lower								33.7	33.0	31.7	27.7	23.3	27.4	25.4
EASR 95% Upper								42.3	41.4	39.9	35.1	30.2	34.9	32.5
% of all cancers								18.8	19.2	19.9	18.0	14.8	17.2	16.5

[1] Percentage of Cumulative Risk (0-74 years)
[2] World Age-Standardised Rate
[3] European Age-Standardised Rate

	Males							Females						
Cervix uteri (180)								1993	1994	1995	1996	1997	1998	1999
Number of deaths								34	37	20	44	27	33	35
Crude Rate per 100,000								4.1	4.4	2.4	5.2	3.1	3.8	4.1
Cum. Risk (0-74yrs)(%)[1]								0.3	0.3	0.2	0.4	0.3	0.2	0.3
WASR per 100,000 [2]								2.9	3.2	1.8	3.6	2.3	2.5	2.7
WASR 95% Lower								1.8	2.1	1.0	2.5	1.4	1.5	1.7
WASR 95% Upper								3.9	4.3	2.6	4.7	3.2	3.4	3.6
EASR per 100,000 [3]								3.9	4.5	2.4	4.8	3.0	3.4	3.7
EASR 95% Lower								2.5	3.0	1.3	3.3	1.9	2.2	2.4
EASR 95% Upper								5.2	6.0	3.5	6.3	4.2	4.6	4.9
% of all cancers								2.0	2.1	1.2	2.7	1.5	1.9	2.0

Ovary (183)								1993	1994	1995	1996	1997	1998	1999
Number of deaths								91	89	99	88	96	89	116
Crude Rate per 100,000								10.9	10.6	11.7	10.3	11.2	10.3	13.4
Cum. Risk (0-74yrs)(%)[1]								0.9	0.9	1.0	0.8	0.8	0.8	1.1
WASR per 100,000 [2]								7.1	6.7	8.2	6.5	7.1	6.1	8.8
WASR 95% Lower								5.5	5.2	6.5	5.0	5.5	4.7	7.1
WASR 95% Upper								8.7	8.2	9.9	8.0	8.6	7.5	10.6
EASR per 100,000 [3]								10.1	9.6	11.6	9.3	10.1	8.9	12.4
EASR 95% Lower								8.0	7.5	9.2	7.2	8.0	7.0	10.0
EASR 95% Upper								12.3	11.7	14.0	11.3	12.2	10.8	14.7
% of all cancers								5.3	5.1	6.1	5.3	5.5	5.1	6.8

Prostate (185)	1993	1994	1995	1996	1997	1998	1999							
Number of deaths	181	210	216	203	206	221	189							
Crude Rate per 100,000	22.7	26.2	26.8	24.9	25.0	26.7	22.8							
Cum. Risk (0-74yrs)(%)[1]	1.0	1.3	1.2	1.4	1.4	1.0	1.2							
WASR per 100,000 [2]	14.5	17.2	17.1	15.7	15.3	15.8	13.6							
WASR 95% Lower	12.3	14.7	14.7	13.4	13.1	13.6	11.6							
WASR 95% Upper	16.7	19.6	19.4	17.9	17.5	18.0	15.7							
EASR per 100,000 [3]	25.7	29.7	30.6	26.8	26.5	28.1	23.5							
EASR 95% Lower	21.8	25.6	26.4	23.0	22.8	24.4	20.1							
EASR 95% Upper	29.6	33.9	34.8	30.5	30.2	31.9	27.0							
% of all cancers	9.6	11.3	11.8	11.1	11.2	11.5	10.9							

Bladder (188)	1993	1994	1995	1996	1997	1998	1999	1993	1994	1995	1996	1997	1998	1999
Number of deaths	61	52	74	63	39	52	43	28	30	33	28	39	27	40
Crude Rate per 100,000	7.7	6.5	9.2	7.7	4.7	6.3	5.2	3.4	3.6	3.9	3.3	4.5	3.1	4.6
Cum. Risk (0-74yrs)(%)[1]	0.6	0.4	0.6	0.4	0.2	0.5	0.4	0.2	0.1	0.2	0.1	0.2	0.1	0.2
WASR per 100,000 [2]	5.5	4.2	6.2	4.9	2.9	4.3	3.5	1.7	1.4	1.8	1.3	1.9	1.2	1.8
WASR 95% Lower	4.1	3.0	4.7	3.7	2.0	3.1	2.4	1.0	0.9	1.1	0.7	1.2	0.7	1.2
WASR 95% Upper	6.9	5.4	7.4	6.2	3.9	5.5	4.6	2.4	2.0	2.4	1.8	2.6	1.7	2.4
EASR per 100,000 [3]	8.9	7.1	10.3	8.4	5.0	6.8	5.5	2.7	2.4	2.9	2.1	3.1	2.0	3.0
EASR 95% Lower	6.6	5.1	7.8	6.3	3.4	4.9	3.9	1.6	1.5	1.9	1.3	2.1	1.2	2.0
EASR 95% Upper	11.1	9.1	12.7	10.5	6.6	8.7	7.2	3.7	3.3	3.9	3.0	4.2	2.8	4.0
% of all cancers	3.2	2.8	4.0	3.4	2.1	2.7	2.5	1.6	1.7	2.0	1.7	2.2	1.6	2.3

[1] Percentage of Cumulative Risk (0-74 years)
[2] World Age-Standardised Rate
[3] European Age-Standardised Rate

	Males							Females						
Kidney (189)	1993	1994	1995	1996	1997	1998	1999	1993	1994	1995	1996	1997	1998	1999
Number of deaths	42	38	48	39	42	42	38	28	22	24	16	36	36	28
Crude Rate per 100,000	5.3	4.7	6.0	4.8	5.1	5.1	4.6	3.4	2.6	2.8	1.9	4.2	4.2	3.2
Cum. Risk (0-74yrs)(%)[1]	0.5	0.5	0.5	0.4	0.5	0.4	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.2
WASR per 100,000 [2]	3.9	3.8	4.5	3.8	3.9	3.7	3.1	2.2	1.7	1.6	0.8	2.1	2.1	1.7
WASR 95% Lower	2.7	2.6	3.2	2.5	2.7	2.5	2.1	1.3	0.9	0.9	0.4	1.3	1.3	1.0
WASR 95% Upper	5.1	5.1	5.7	5.0	5.1	4.8	4.2	3.2	2.5	2.3	1.3	2.9	2.9	2.4
EASR per 100,000 [3]	5.8	5.4	6.6	5.4	5.5	5.6	4.8	3.0	2.4	2.4	1.4	3.3	3.2	2.6
EASR 95% Lower	4.0	3.7	4.7	3.7	3.8	3.9	3.3	1.8	1.4	1.4	0.7	2.1	2.1	1.6
EASR 95% Upper	7.6	7.2	8.5	7.1	7.2	7.3	6.4	4.2	3.5	3.4	2.0	4.4	4.3	3.6
% of all cancers	2.2	2.0	2.6	2.1	2.3	2.2	2.2	1.6	1.3	1.5	1.0	2.1	2.1	1.6

Non-Hodgkin's Lymphoma (200&202)	1993	1994	1995	1996	1997	1998	1999	1993	1994	1995	1996	1997	1998	1999
Number of deaths	64	68	59	56	67	68	50	42	43	39	63	58	71	69
Crude Rate per 100,000	8.0	8.5	7.3	6.9	8.1	8.2	6.0	5.0	5.1	4.6	7.4	6.8	8.2	8.0
Cum. Risk (0-74yrs)(%)[1]	0.7	0.8	0.6	0.7	0.8	0.6	0.5	0.3	0.3	0.3	0.6	0.5	0.6	0.5
WASR per 100,000 [2]	6.3	6.4	5.5	5.2	6.1	6.0	4.5	2.6	2.6	2.6	4.1	4.1	4.7	4.6
WASR 95% Lower	4.7	4.8	4.1	3.8	4.6	4.5	3.2	1.7	1.8	1.7	3.0	2.9	3.5	3.4
WASR 95% Upper	8.0	8.0	6.9	6.6	7.6	7.5	5.8	3.5	3.5	3.5	5.2	5.3	6.0	5.8
EASR per 100,000 [3]	9.2	9.2	8.2	7.5	8.9	8.8	6.4	4.0	4.0	3.9	6.1	5.7	6.9	6.7
EASR 95% Lower	6.9	7.0	6.1	5.5	6.8	6.7	4.6	2.7	2.8	2.6	4.5	4.2	5.2	5.0
EASR 95% Upper	11.5	11.5	10.3	9.5	11.1	10.9	8.2	5.2	5.3	5.2	7.7	7.3	8.6	8.3
% of all cancers	3.4	3.7	3.2	3.1	3.6	3.5	2.9	2.4	2.5	2.4	3.8	3.3	4.1	4.0

All Leukaemias (204-208)	1993	1994	1995	1996	1997	1998	1999	1993	1994	1995	1996	1997	1998	1999
Number of deaths	41	58	51	46	54	57	65	42	36	34	40	56	35	37
Crude Rate per 100,000	5.1	7.2	6.3	5.6	6.6	6.9	7.8	5.0	4.3	4.0	4.7	6.5	4.1	4.3
Cum. Risk (0-74yrs)(%)[1]	0.4	0.5	0.5	0.3	0.6	0.6	0.5	0.3	0.3	0.2	0.3	0.4	0.2	0.2
WASR per 100,000 [2]	3.9	5.5	5.1	3.9	5.0	5.3	5.7	3.3	3.0	2.7	3.1	4.1	2.6	2.2
WASR 95% Lower	2.7	4.0	3.6	2.7	3.6	3.9	4.2	2.2	1.9	1.6	2.0	2.9	1.6	1.4
WASR 95% Upper	5.1	7.0	6.3	5.1	6.4	6.8	7.2	4.4	4.1	3.7	4.2	5.4	3.5	3.0
EASR per 100,000 [3]	5.6	8.1	6.8	5.9	6.8	7.5	8.1	4.4	3.8	3.5	4.1	5.4	3.3	3.3
EASR 95% Lower	3.8	6.0	4.9	4.2	5.0	5.5	6.1	3.0	2.5	2.3	2.7	3.9	2.1	2.2
EASR 95% Upper	7.3	10.2	8.7	7.6	8.7	9.5	10.1	5.9	5.2	4.7	5.4	6.9	4.4	4.4
% of all cancers	2.2	3.1	2.8	2.5	2.9	3.0	3.8	2.4	2.1	2.1	2.4	3.2	2.0	2.2

All cancers ex NMS (140-208 ex 173)	1993	1994	1995	1996	1997	1998	1999	1993	1994	1995	1996	1997	1998	1999
Number of deaths	1875	1846	1830	1827	1836	1914	1720	1722	1737	1626	1654	1738	1725	1712
Crude Rate per 100,000	235.3	230.2	227.3	223.8	223.2	231.4	207.6	206.2	206.8	192.7	194.0	202.7	200.3	198.4
Cum. Risk (0-74yrs)(%)[1]	17.8	17.1	16.7	16.6	16.4	16.3	15.1	13.0	12.4	11.9	11.8	11.8	11.7	11.1
WASR per 100,000 [2]	172.9	170.3	164.7	158.1	156.5	159.7	143.9	120.3	117.6	110.7	107.4	110.1	107.3	106.0
WASR 95% Lower	164.9	162.3	156.9	150.6	149.1	152.3	136.9	114.0	111.5	104.7	101.6	104.3	101.6	100.3
WASR 95% Upper	181.0	178.3	172.2	165.6	164.0	167.1	151.0	126.6	123.8	116.7	113.2	115.9	113.0	111.7
EASR per 100,000 [3]	265.7	260.9	253.3	243.4	240.0	247.1	220.1	176.5	173.7	163.4	158.5	163.5	160.2	158.2
EASR 95% Lower	253.5	248.9	241.6	232.1	228.9	235.9	209.7	167.8	165.1	155.1	150.5	155.4	152.2	150.3
EASR 95% Upper	277.9	273.0	265.1	254.6	251.1	258.2	230.6	185.3	182.3	171.8	166.6	171.7	168.2	166.1
% of all cancers	99.8	99.5	99.8	99.5	99.5	99.6	99.5	99.5	99.9	99.8	99.8	99.8	99.7	99.9

[1] Percentage of Cumulative Risk (0-74 years)
[2] World Age-Standardised Rate
[3] European Age-Standardised Rate

	Males							Females						
All Cancers (140-208)	1993	1994	1995	1996	1997	1998	1999	1993	1994	1995	1996	1997	1998	1999
Number of deaths	1878	1855	1833	1836	1845	1921	1729	1730	1738	1630	1657	1742	1730	1714
Crude Rate per 100,000	235.7	231.4	227.6	224.9	224.3	232.2	208.7	207.2	206.9	193.2	194.3	203.2	200.9	198.6
Cum. Risk (0-74yrs)(%)[1]	17.8	17.2	16.7	16.7	16.4	16.3	15.2	13.1	12.4	11.9	11.8	11.8	11.7	11.1
WASR per 100,000 [2]	173.1	171.1	164.9	158.8	157.1	160.3	144.7	120.9	117.7	110.9	107.6	110.3	107.6	106.2
WASR 95% Lower	165.1	163.1	157.1	151.3	149.7	152.9	137.6	114.6	111.5	104.9	101.8	104.5	101.9	100.5
WASR 95% Upper	181.2	179.1	172.4	166.3	164.6	167.7	151.7	127.3	123.8	116.8	113.4	116.1	113.3	111.8
EASR per 100,000 [3]	266.1	262.2	253.8	244.5	241.0	248.1	221.3	177.5	173.8	163.7	158.8	163.9	160.6	158.4
EASR 95% Lower	253.9	250.1	242.0	233.3	230.0	236.9	210.8	168.7	165.2	155.4	150.7	155.7	152.6	150.5
EASR 95% Upper	278.3	274.3	265.6	255.8	252.1	259.2	231.8	186.2	182.4	172.1	166.9	172.0	168.6	166.3
% of all cancers	100	100	100	100	100	100	100	100	100	100	100	100	100	100

[1] Percentage of Cumulative Risk (0-74 years)
[2] World Age-Standardised Rate
[3] European Age-Standardised Rate

Evaluation Form

Your comments on this NICR report would be very much appreciated. We would hope to incorporate any suggestions you may have into subsequent reports. You may send your comments electronically using a copy of this form at www.qub.ac.uk/nicr/intro.htm

Name (Optional): _____

Organisation: _____

Position in Organisation: _____

Which of the following best describes you (Please tick ✔)?

☐ Doctor ☐ Nurse ☐ Other Health Professional ☐ Teacher/Lecturer

☐ Student ☐ Cancer Charity ☐ Community Group ☐ Media

☐ Member of Public ☐ Other (Please Specify) _____

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How useful did you find this report?

	Very Good	Good	Fair	Poor	Very Poor
General Content	☐	☐	☐	☐	☐
Readability	☐	☐	☐	☐	☐
Tables	☐	☐	☐	☐	☐
Diagrams	☐	☐	☐	☐	☐

Which chapters or sections did you find most useful?

Introduction ☐

Cancer Sites (Please Specify) ☐

Comparisons by age, sex ,etc. ☐

International Comparisons ☐

For what purpose did you use the report? _____

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PTO…

Evaluation (cont'd)

What else would you like to see in a future report? _____

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Other comments and suggestions: _____

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